

AGENDA AND NOTES
FROM THE
UPPER AND LOWER COOK INLET STAFF MEETING
FEBRUARY 7-9, 1989

Edited by

James Browning
Fisheries Biologist

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AGENDA

Upper and Lower Cook Inlet Staff Meeting
Soldotna
March 7-9, 1989

Chairman: John Hilsinger

Tuesday, February 7th - 9:00 a.m.

I. Administrative

- A. Fax usage
 - 1. Public use
 - 2. Charging
 - 3. Time spent
- B. Radios
- C. General information
- D. Questions and Answers with Wayne
 - 1. Time sheets and O.T. tracking
 - 2. Any hiring changes
- E. Other

II. Budgets

- A. Pre-audits
 - 1. Salmon
 - a. U.C.I.
 - b. L.C.I.
 - 2. Herring
 - a. L.C.I.
 - b. U.C.I.
 - 3. Groundfish
 - a. State
 - b. Federal
- B. Other
 - 1. CIP requests
 - 2. FY 91 CIP requests

----- Lunch: 12:00 to 1:00 p.m. -----

III. Project Review

- A. Salmon
 - 1. U.S. Fish and Wildlife Service review
 - 2. Sport Fish Division review
 - a. Coho update
 - b. Other projects
 - 3. L.C.I.
 - a. Management
 - b. Catch sampling/Stock I.D.
 - c. Escapement
 - d. Fish tickets
 - e. New projects

III. Project Review (cont'd)

4. U.C.I.

- a. Management
- b. Fishery monitoring
 - 1. Fish tickets
 - 2. Catch reporting
 - 3. P.U. king reporting

Wednesday, February 8th - 8:30 a.m.

- c. Sonar projects
 - 1. Rivers
 - 2. Lakes
- d. Catch sampling/Stock I.D.
- e. Offshore test fish
 - 1. Test fish funds
- f. District test fish
- g. Status of 5 year plan
- h. New projects
 - 1. Eastside beach monitoring
 - 2. Susitna weirs
 - 3. Historical catch analysis
 - 4. Kenai smolt
 - 5. Kustatan fishery monitoring
- i. Other research
 - 1. Length/Weight - Tarbox
 - 2. L.C.I. - Yuen

----- Lunch: 12:00 to 1:30 p.m. -----

B. Herring

- 1. L.C.I. - Schroeder, Morrison, Yuen
 - a. Management
 - b. Catch sampling
 - c. Test fish
 - d. Aerial survey
 - e. Cohort analysis
 - f. Harvest projections
 - g. Needs
 - h. New projects

C. Groundfish - Morrison

- 1. State
- 2. Federal

D. Project Reporting - Meacham

Thursday, February 9th - 8:30 a.m.

IV. Fish and Wildlife Protection

A. Herring

- 1. Kamishak
 - a. Vessels
 - b. Aircraft

IV. Fish and Wildlife Protection (cont'd)

A. Herring (cont'd)

- 2. Upper Cook Inlet
- 3. Other

B. Salmon

- 1. Northern District
 - a. River mouth closures
 - b. Fish Creek terminal area opening
- 2. Central District
 - a. Corridor and Kenai River mouth
 - 1. Aircraft
 - 2. vessels
 - b. Other river mouths
 - c. Other
- 3. L.C.I.

C. General Fish and Wildlife Protection outlook

D. Other problems

V. Personnel

- A. Retirement Incentive Program
- B. Area Office Assistant
- C. Position Description Questionnaires
- d. Other

VI. Computers and Data Processing

- A. Upgrade of existing machines
- B. Software
- C. New hardware needs
- D. Other

Upper Cook Inlet Staff Meeting

February 7, 1989

Called to Order: 9:20 A.M.

Chaired by John Hilsinger

I. Administrative

A. Fax usage

Use for advisory committees or Board of Fisheries documents is Okay. Processor information requests will be sent to local numbers only. There will be no additional budget for added Fax costs. Other division use will be okay as secondary priority. UCI will Fax EO's, receive Fax daily catches and use any way that will save time and/or money. Action: Florey will discuss Fax policy with Juneau and Wayne will distribute a memo re: policy on FAX usage.

B. Radios

No VHF currently in service in Soldotna. LCI has PR in for new base station; also needs two portable units (SSB) for herring. Pandalus radios were discussed. Standby receivers are needed in LCI. Anchorage has some orange SSB's that may meet Homer's needs. They need antennas.

C. General information - none

D. Administrative Questions and Answers with Wayne Prigge

TR's need to be fully coded on the vendor's white copy. Don't partially code white copy and then come back to office and code the pink copy. The vendor is paid from the white copy and if it gets to Juneau with no code on it, they use a dump code. Then someone has to take a lot of time finding the right code to give it to.

Concentrate on updating PDQ's for seasonals. Some of them haven't been updated since 1984. Question from Florey: "How many of you have even looked at your seasonal PDQ's." Soldotna's commercial fisheries PDQ's are updated and complete. Question from Meacham: "What good are they?" Generic PDQ's for each job type are okay but individual ones do have to be signed by all seasonals before the field season.

Time sheets will be handled the same as last year. Wayne emphasized using pencil only, military time only, and fill out just the back side. They must also be legible or will be sent back to be redone. Anchorage will not take kindly to them not being filled out right. The area offices need to have copies of completed time sheets sent back to them for budget tracking. Wayne said that it takes 10-15 minutes to do each time sheet at the least and there is a time crunch at the regional level on time sheets. Action: Copies of time sheets will be provided to area offices for budget tracking by regional office.

Wayne let everyone know that if an employee comes on duty the second day of a month instead of the first, health insurance is not taken out of the budget for that month. That means that budgets could save \$412 for each month that happens.

Wayne reports that he has received 90% of the seasonal letters back so far.

Supervisors can sign leave slips.

The Clearinghouse will operate again this year with all items going through Wayne. Anna Cooper will handle the Clearinghouse in Juneau. Supervisors should review and update seasonal work opportunities. Wayne will track PCN's to geographic location and not to supervisors.

PCN's were inventoried in Juneau and some vacant ones were taken away. Florey asked if there were any PCN's vacant. McHonegy (budget person) is scoping out any PCN vacancies. Action: Florey, Wayne and Clasby will review the PCN situation.

E. Other

Henry Yuen's Tech II problem will be talked about under L.C.I.
Staffing increments - starting July 2.

II. Budgets

A. Pre-audits

1. Salmon (U.C.I.):

a. Upper Cook Inlet salmon budget short 8.9K. Items that contributed to shortage were: 1. lack of allocation for in-season fish ticket entry. 2. New Kustatan fishery monitoring/catch reporting person. 3. Accelerator boards for 8086 Compaq computers - \$1500.00. 4. Kasilof River sonar extra person. 5. MEJ back log - inaccurate budget tracking. 6. Line 100 should have been short by 10%. Division has 400K to allocate out to people for Line 100 shortages. We will get 100K in extra test fish allocation from Westward. U.C.I. was adjusted to 10% down. Question: "What has been done to cut Line 100 by 10%? Problems to deal with in next year's allocation.

1. Salmon (cont'd) L.C.I

a. L.C.I. Salmon will have 15.6K deficit. Most of deficit will be in Line 300 because office rent was doubled. Telephone lease purchase required additional funds (Marnee is checking on charges). Telephone bills handled out of Anchorage (non-credit card users) cost our division 49%. Vehicle charges for sedan ("Z" class) were up to \$132 in July. Salmon aerial survey budget deficit is \$4,000.00 and will be larger in future years.

2. Herring

a. Lower Cook Inlet

L.C.I. Herring budget deficit is \$16,000 with purchase of Boston Whaler. LCI herring test fish allocation last FY was 35.9K plus 13K for catch sampling. This FY's allocation is only 32.4K. Deficit expected for monitoring and management programs this coming season. Question: "Why cuts from general fund?" Florey answered regarding salaries going from test fish back into operational budget. Hilsinger: "Some herring-related equipment for the "Pandalus" could be covered under test fish funds." Improved electronics (28K minimum) were put on Pandalus that is now coded to Pandalus repair but depends on Risk Management coverage. If there is no coverage, then 30K plus in red.

b. Upper Cook Inlet - no discussion of herring pre-audit

3. Groundfish - Discussion of groundfish pre-audit held with Morrison and regional staff separately from general staff meeting.

B. Other

Bob Clasby spoke briefly regarding Statewide budget - FY 89. Westward Region has 250K extra from two test fish projects that can be used by other areas. Line 100 shortages occurring because of insurance costs. Division deficit of 430K for FY 89. FY 89 allocations didn't have increased insurance cost accounted for. They were short 5-10%. Wayne says there is an approximate increase of \$20/person/month. Carmine in Computer Services might be able to re-program the Expenditure Tracking System so that pre-audits can be a product. FY 90 increment for UCI approximately 250k. Bill in Legislature that anyone with EO authority (CF) needs conflict of interest declaration. Governor Cowper stated they will forego some cuts if additional revenue becomes available. Allison Elgee is head of OMB; all questions to her. No one knows where cuts will come from but given the worst case scenario, Commercial Fisheries should come out even.

Headquarters News: New Deputy Director is Dave Cantillion. He will supervise Fisheries Info; Herman Savikko, Eric Anderson, Extended Jurisdiction. Dave Benton - Governor's special assistant, is in charge of external fisheries affairs.

Pennoyer is to give 180K for economic analysis of high sea interception. Cantillion would supervise economist from that 180k. CFSO (Eggers) would get another Biometrician. CFEC groundfish fish ticket position to be transferred to Division of Commercial Fisheries (still overseen by NMFS).

Questions from Florey to Clasby: "How come we send down flow charts, etc. on diskette and we get back paper?" "Where do we stand with mixed stock fishery policy?" Clasby isn't sure where that is at. Management plans under development for mixed stocks, enhanced stock, rapidly developing fisheries. Board discussed LCI seine fishery at December meeting. They probably won't do anything with Shelikof intercept fishery under Statewide regulations. Chignik has proposal, etc. Next year the Board will probably focus on these intercept issues. Perhaps they would close outside three miles from shore.

Eggers is recruiting for a Chief Fisheries Scientist I. The objective is to reduce number of people supervised by Eggers. Gaudet's position (PCN and funding) has transferred to Region I as a Troll biologist - no sonar person in Headquarters. Florey said Region II would be more than willing to take over Bendix contract in Anchorage because all the action is here.

Hilsinger talked about the status of FY 90 CIP requests from Region II. Vessel CIP got in - "Major maintenance" 130K FY 90; Facilities Maintenance CIP got in governor's budget. Can still get something included to take care of buildings that are "falling down". Clasby said that we can't expect big CIP's while oil revenues are down. Florey wanted to know how CF ended up in FY 88 and the estimate was plus or minus 20-30k.

Florey mentioned that a lot of Central Region revenue is covered in test fish funds. There needs to be a better way to track test fish funds in Juneau and Headquarters will discuss that with the Region. At the end of the pre-audit, could we get supplemental test fish allocations to cover short falls this fiscal year? Rich Cannon is requesting 100k of Westward's 250k spare test fish funds.

Organizational discussion with Parker: Flow chart - Commissioner - Deputy Norm Cohen - Director - Regional Supervisor.

Clasby talked about bunkhouse charges for seasonal employees. There will be no bunkhouse charges to employee for usage if he/she is on local scale.

Tarbox said that seasonals are treated differently between regions and between areas within regions. There needs to be some consistency. Shift differential, overtime, etc., are adding greatly to budgets and can't be overlooked.

Bob Clasby presented John Hilsinger with a Director's Award for Vessel Section work with R/V Pandalus.

III. Project Review

A. Salmon

1. US Fish & Wildlife Service - Dave Faurot - Three studies initiated:

a. 1988 - Kenai Coho Study - First of two years. 102 radio tagged coho to determine spawning distribution, areas and timing ; 45 tags on early run, 70% in tributaries and 30% below River Mile 40; 57 tags for late run, 95% mainstem spawning. Five tags tags recovered in Killey River. Early run 1.6 miles/day migratory rate, September to October spawning; late run 2.3 miles/day migratory rate, October to February spawning. F.W.S. will repeat this project next year and will try to locate individual tagged fish on spawning beds.

b. Swanson River Watershed Studies: Weir placed on Swanson River. 500 early and 1000 late run sockeye were counted. 25,000 coho came through weir late July-September. More sockeye smolt out than coho. Seasonal Rainbow trout migration in and out of lakes into the mainstem will be looked at.

c. Kasilof River Project - Investigation of late run chinook salmon timing and spawning area. Chinook use from Slack water campground downstream to river kilometer 16. Coho timing and spawning areas are also being investigated. Coho salmon tagged at sonar site in fishwheel - July 25. F.W.S. didn't find any early coho. August 15-25th peak reported historically at Nikolai Creek. Indian Creek received less than 5000 coho. Next year an additional 200 tags will be used in sockeye to look at beach spawning in Tustumena.

2. Sport Fish Division Review - Review of last year's programs and intended projects for 1989. Initial discussion of legislative funding and assorted divisional concerns regarding potential projects in the Susitna drainage by Krasnowski. Tarbox stated that the intent of the proposed project by the Commercial Fisheries Division is to look at lake productivity by euphotic volume for escapement goal purposes. Krasnowski: "Are these studies directed at short-term enhancement potential?" "Sport Fish Division would come down opposed to enhancement in Susitna drainage." Commercial Fisheries Division is interested in lake information in Susitna as it relates to escapement goals.

a. Coho update

Doug Lang: Sport Fish Division collected 4000-5000 coho scales out of Northern District drainages and 4000-5000 out of Kenai River and other peninsula streams. Migratory timing or mean length at age methods used to separate stocks. Major mixed stock fisheries in UCI are drift and N.D. westside set. These catch N.D. stocks. Eastside beach coho catch are Kenai fish predominantly. Mesh selectivity is evident - Kenai River coho are largest. Sport Fish Division will do escapement sampling and commercial catch sampling. Approximately 60% of coho run has passed Yentna when we pull sonar out.

Tarbox: We might contract fishwheels at Sunshine on Susitna if project is a go.

Lang: N.D. coho have similar 2.1 age component as Kenai Peninsula but differ in 1.1 and 3.1 component. Kenai weighted toward 3.1. A two year project report will probably be put out after next year. Sport Fish will put person on sonar crew for coho escapement sampling. See Appendix A.

b. Other Projects

Chinook: Kenai habitat work done. Radio tagged hook and release study is to be done. A weir is planned for Alexander Creek through the coho salmon run. Kenai Chinook Management Plan outlining Sport Fish management objectives for 1989 and beyond. Doug McBride is preparing two documents, one for public and one technical document.

PU chinook reporting - CF will advise SF of PU catch of kings.

Kenai River Sockeye Management Plan: CF staff to advise SF staff of projection. Adjustment of SF bag limit on sockeye if escapement is between 400,000-700,000. SF will have info on whether reduction in bag limit would affect harvest.

Questions from Schroeder to Krasnowski: July 1 take over of weir program on Bear Lake by CIAA. Release site and year of chinook release, 1990, Lowell Creek.

Steelhead projects on Anchor and Seldovia - Status - These are still on five-year stocking plan. Krasnowski expresses doubt on these projects for political reasons. SF will review stocking plan in three weeks.

CIAA/Mears is not on agenda - need separate discussion. Short discussion regarding BMP for Trail Lakes discussion with Mears. BMP will be taken to Commissioner's level around local area staff. Chelatna Lake: 10 million stocking level objectionable by FRED, CF and SF.

Krasnowski: Susitna Coho Project probably will not be funded. Project included fishwheels, mark and recapture estimate. CF will plan on weir project in Susitna for our own purposes: Judd, Larson, Hewitt, Whiskey, and Chelatna lakes are proposed for weirs.

Bendock will undertake chinook catch and release study in 1990 - unsure what he will do in 1989.

3. LCI Salmon Project Review

a. Management

1. Mikvik Management Plan - Kamishak District - Beginning in June. Question from Florey regarding subdistrict boundary change proposal at board meeting. Paint River Subdistrict boundaries and McNeil Subdistrict boundaries discussed.

2. Paint River stocks will be mid-July-August return. Next come Tutka and Leisure Lake (150,000) pink salmon runs and Halibut Cove Lagoon. Chenik - 150,000 estimated return; Paint River - 25,000; Overall - 425,000 projected sockeye harvest. These estimated returns based on intermediate ocean survivals and not counting natural production. 13,000,000 pinks released between Tutka and Halibut Cove Lagoon. 1.5-2,000,000 chum fry released in Tutka from Cottonwood Creek in Kamishak. English Bay lakes included in Tutka Management Plan starting spring 1990.

3. 10 Lakes now in LCI sockeye stocking plan - Ursus Cove Lake and Bruin Bay Lake added to sockeye stocking plan. Total is now 9.5-10 million fry. By mid 1990's might want to stock earlier returning sockeye in some of LCI lakes to spread out effort to different districts. See Appendix B. No increase in chum returns until 1992. Management of Eastern District to be turned over to Rance with Tom's oversight - returns aren't expected to be large.

\$90-100,000 fund for Seiners Association for enhancement. Details have been worked out with Division of Wildlife Conservation regarding Mikvik Management Plan and McNeil River.

Hilsinger: If you stock fish in a river, it doesn't immediately become an anadromous stream - Fish and Game comments are limited.

b. Catch Sampling

Henry Yuen: 1989 Catch Sampling Plan same as 1988. Tenders mix fish from other areas so plan to fly out to tenders before the mixing occurs. Sample size >500 readable scales, 600 is better. Two person crew, 160-200 fish per hour depending on logistics. Crews are writing on old AWL forms, not using mark sense forms, entering right into PC. Able to turn around sample in three days without overtime to stay within budget. 1988 report being reviewed in Juneau. An electronic measuring board with keyboard ordered to enter measurements and download directly to PC. Length/weight relationship possible for Stock ID use but not with mixed stock fisheries.

c. Escapement - LCI

Schroeder: No major changes in aerial survey and ground survey. Clasby to check on statewide policy of setting escapement goals. Florey: Escapement goals become allocative. Two part approach: Sockeye goals - Hal Geiger writing policy to outline steps for sockeye goals. Current Headquarters level discussions involve escapement goals as "public policy" issue where Department advises but public makes decision on implementation of escapement goals. Department may set minimum biological goal to preserve stock but production or yield oriented goals to be determined by public. "0 sustained yield" policy implemented in SE Alaska on summer chums because of commercial harvest of pink and coho stocks. There was discussion regarding public policy versus Department role in determining escapement goals. We need a written policy.

Hilsinger: What is status of LCI escapement database? Fred Jansen has worked out program in RBase for LCI escapement information. Examples shown to Hilsinger. LCI catch database is complete except for 1984. LCI aerial survey techniques manual? It has not been started.

d. LCI Fish Tickets - 1988 complete, only 1984 not finalized.

Suggested fish ticket number allocation:

250,001 - 278,000	UCI Salmon
278,001 - 281,000	UCI Herring
281,001 - 285,000	UCI Clams
285,001 - 290,000	LCI Crab
290,001 - 292,000	LCI Shrimp
292,001 - 293,000	LCI Misc. Shellfish
293,001 - 297,000	LCI Groundfish
297,001 - 298,000	LCI Misc. Finfish
298,001 - 300,000	LCI Herring
900,001 - 910,000	LCI Salmon

e. LCI New Projects

Schroeder: Submitted in memo to Regional Staff. Leisure Lake smolt project - FRED developed this project and Schroeder would like to see CF pick up smolt project. Florey asked why we want that project. Seven years of smolt data already. Two million fry stocking level. About 28K price tag for FRED operations. There are higher priorities as far as funding is concerned according to Regional Staff.

Discussion regarding pre-emergent fry digging in LCI.
Forecasting tool - some systems gave good correlation to returns, some didn't. Program was scrapped when budgets were cut.

Schroeder: Correlation of numbers may not be good but it gave you a feeling of what was going on the stream, re-channelization, scouring, etc. This information is subjective but should be included in management of fishery.

Pre-audit requests: first priority - additional aerial survey funding; second priority - Leisure Lake smolt project; third priority - pre-emergent fry digging.

4. UCI Salmon Project Review

a. Management

1. New Kustatan fishery - not managed but will be monitored. Aerial surveying early to familiarize with operation.

2. Traditional fisheries - probably fish regular periods, probably have to close one drift period. There are two stocks of concern, Kenai and Susitna. Most to be gained by period on Friday, July 14. Inclination is to close at least northern part of eastside and Northern District. How far south to close on eastside would depend on Kasilof escapement. Back half of Kasilof should be weak with four-year component. "Smolts" article giving Season Outlook in May again preceding season. Last year, "Smolts" article became a news release and became blown out of proportion and generated law suit by Penney.

Question regarding period closure as it relates to Shelikof Interception. Headquarters to be made aware of potential and forewarned.

b. Fishery Monitoring

1. PU king reporting - Number of kings recorded on fish ticket that are kept for PU. Number of chinook to be compiled from fish tickets, not reported in data base.

2. UCI fish tickets - 1988 tickets completed on time. 1985 corrections finalized. 1984 to be completed before April 15, 1989. See Appendix C.

3. Catch reporting - Ginny is to enter catch reports directly into computer spreadsheet. Ginny to come on three weeks early to cover Kustatan fishery.

Florey brought up marker placement at Goose Bay.

Tarbox handed out five-year research plan.

UCI STAFF MEETING

February 8, 1989

8:35 A.M.

III. Project Review (continued)

A. Salmon (cont'd)

4. U.C.I. (cont'd)

c. Sonars

1. Rivers

All projects are the same as last year except Crescent River. Experimental fish trap built that may alleviate the need for test fishing contract. It should provide

escapement samples. Kenai and Yentna sonar plans same as last year. Kasilof River sonar count = 152,000. Stream survey, etc. called for adjustment of count up to 202,000. See Appendix D.

Bendix counters have inherent flaw. Middle sector counting - must overcount in certain sectors and undercount in others to compensate for middle sectors. Menin has changed "hit criteria" on one counter in UCI; others must be converted. Money saved by not having calibrations run through night, no shift differential, etc. 1988 was first year we haven't calibrated all night long and it was because of the budget. Meacham: First three "possible changes for 1989" are good and should be carried out; "d" and "e" concern additional funding and are more problematical. See Appendix ____.

Ruesch: Early fish probable cause for undercounting on Kasilof but earlier starting date probably isn't warranted - not a chronic problem.

King: When fishwheels are run through the night and species apportioning is expanded for 24 hours, species apportioning may be skewed.

2. Lakes

Plans are to do lake surveys same as 1988 on Kenai and Skilak Lakes. Project needs a bigger boat for tow-netting and hydroacoustics. Attenuation of signal strength in lakes is a problem; some work up to be done by Paul Skvorc from CFSO but isn't available yet.

Successful at tow-netting down to 30 meters. Age 0 sockeye fry were 50 mm and .9 grams compared to sockeye fry from Bendock's river minnow traps: sockeye fry were 55 mm and 1.9 grams. LCI Sport Fish may have a 22 or 23 foot boat with outboard available. Plans are to perhaps charter a larger boat for tow-netting.

d. Catch Sampling/Stock ID

Catch and Escapement Program - In 1988, sockeye, chinook, chum and coho were sampled for age, sex and size composition. Seven fisheries were sampled for sockeye three were sampled for chinook while chum and coho salmon were sampled in two. Sampling goals were met for most fisheries and species (See Appendix E). Some difficulties were observed in trying to take both chum and coho samples with one crew. 1989 sampling design will be same as 1988 - coho, chum, chinook and sockeye to be sampled with some modification to crew assignments. C & E report due out in May. Coho sampling levels should meet Sport Fish Division's needs. 400 scales for sample size: 70 - 80% Age 2.1. Stock ID discussion to be held in Five Year Plan section.

e. Offshore Test Fish Program - same as 1988. Going back to traditional fishing program rather than moving boat around between stations, different times and areas, etc. Salmon Testfish - Pre-audit discussion - Offshore testfish allocation: 75.7K

f. District Test Fish - Same as 1988. Bids out June 1st. This program will probably be used this year with 6 or 8 boats.

g. Status of Five Year Plan - See Appendix F.

Stock ID - See handout for evaluation of accuracy. How accurate are the models? Accuracy questions have surfaced in the past. Do variables change through time? Are some variables consistent through time? Are these consistent biases in models? Analysis shows there are time dependent variables so one post-season model isn't valid to apply. Significant errors in classification can occur. The bottom line is that we can't run an in-season analysis on scale patterns and have any confidence in the results. There is no predictability. We can't provide in-season stock comp estimates within the + or - 20% range.

Florey: Are we doing this same sort of analysis in other areas with Stock ID?

Meacham: We would like to get away from in-season analysis and perhaps work towards R & D of other parameters to base model upon. Shift emphasis from in-season to post-season and R & D. What can management work with or without?

Ruesch: We have relied upon it in certain-circumstances but much less so recently. It will not stop management but it will make it more difficult.

Joe Kelly (digitizer) will now read scales. Stock ID budget will stay with UCI but will be redirected.

Salmon Catch and Escapement Sampling - King

Length/weight relationships of sockeye salmon were examined (See Appendix G). Large sample sizes make the significance very sensitive, in practical application - slopes of regressions are the same. Plan is to select data sets from each river to see if percent error is something we can live with and then perhaps stop taking weights and apply common regression. Yuen had similar results with Bristol Bay data. Sunshine fishwheel recommendation on Susitna River to obtain sockeye escapement samples. Contract with someone to run fishwheel. The catch would probably pay for the program. Discussion regarding feasibility of contracting versus using Department employees - not recommended to "cost recover" there - we'll pay for sampling with TF funds.

h. New Projects

1. Susitna weirs

Idea goes back to 1980 when Tustumena was being investigated. Hydroacoustics and smolting to measure production is now working with Tustumena and could be applied to Susitna. Escapement numbers are needed to complete Ricker Curve information for productivity. Project

focuses on 24 lakes that produce sockeye - we had data on seven and gathered information on other 17. (see Appendix H). Production capabilities based on euphotic volume of all 24 lakes = 957,000 sockeye (2500 fish/E.V.). Plan is to look at five lakes/year and rotate through 24 lakes. 70% of euphotic volume is from Yentna side of Susitna drainage - desire is to look at major producers first. Investigations are directed at production not enhancement potential. Sport Fish Division's approach to coho, i.e. mark and recapture project, is plagued with difficulties as evidenced by Susitna Hydro. 250K will produce three numbers of questionable reliability. Sub-system (24 lakes) approach will produce production information which can be applied to escapement goals.

Meacham: Susitna River is the "black hole" of knowledge after millions have been spent. This 200k subsystem approach is the first step towards understanding the Susitna system.

Clasby discussed Sport Fish/Comm Fish competition for CIP funding.

200k increment is in Governor's budget for FY 90. Tarbox, King, Waltemyer and Brannian would be project team and would probably hire an FB I July 1 to hire crews and get weirs in place. Operational plan is needed for Juneau to defend funding. Discussion with Eggers (CFSO) is needed before operational plan can be written.

Stream Survey Report (see Appendix I.) - Need data from other divisions and agencies to supplement current database. All our data is in database. Current report will be updated every five years.

2. Eastside Beach Monitoring - Aerial photographic mapping of nets in ESSN fishery - \$3500/flight. \$22,000 in increment for this component.

3. Historical Catch Analysis

4. Kenai Smolt - May 15 to July 1 program duration. Fixed trap on each side with smolt barge in middle. Three people funded in project - 15 shifts. What hours of day should it be covered? Smolt sonar counters might be used in conjunction with smolt traps. Fixed incline-plane traps versus smolt barge. Project operational plan is being written.

5. Kustatan Fishery Monitoring - Catch sampling for age composition should be done. Timing should be first week in June. Ruesch and Browning will sample and do aerial surveys.

i. Other Research

1. Length/weight - already covered
2. LCI - Yuen - no additional projects

Meacham: High Seas Fishery handout (See Appendix J.)

New Bristol Bay sonar person - would like to send him to Cook Inlet for training.

B. Herring

1. LCI - Schroeder, Morrison and Yuen

a. Management - Kamishak sac roe fishery should open on or about April 18; Southern, Outer and Eastern Districts will open April 20. Morrison will manage Outer and Eastern Districts. Estimated total harvest of 6,100 tons; consisting of 5300 tons of sac roe and 800 tons in bait fishery.

b. Catch Sampling - same as 1988. Sampling crews will be ready on 18th of April. Herring samples will be transported from UCI, Outer, Eastern and Kamishak fisheries to Homer Lab. One day turn around time after receiving samples. 1988 Technical Fisheries Report in Juneau for review.

New 20 foot Boston Whaler, twin 70 hp motors and trailer ordered for Kamishak.

Schroeder is interested in average weight by age class to determine run timing.

Herring have been seen in Kamishak from 33°F-43°F water temperature.

c. Test Fish - same as 1988. Samples are needed from the later part of the fishery - B. Flynn is contracted to fish - late test fishing will also serve to calibrate aerial surveys.

Schroeder: Shelikof bait herring harvest is presently 330 tons (Malloy, pers. comm.). Question regarding bid procedure for LCI herring test fish short term vessel charter. No bids have been taken in Homer in the past, formal or informal. Schroeder says they were told no bids were necessary two years ago.

Ruesch inquired if any official policy existed on what processor gets to buy test fish? No policy has been adopted.

d. Aerial Surveys - no additional comments regarding LCI. Florey discussed aerial surveys. Biomass estimate becomes allocative by new Board of Fisheries policy in Prince William Sound and Sitka - harvest must proceed by original estimate even if new or more fish show up.

e. Cohort Analysis: Dominant age classes expected for LCI herring: 5, 6, and 8. Age 7's are expected to be weak and Age 4's should be as weak as 3's.

f. Harvest projections - covered under L.C.I. management

Meacham: Harvest projection is 10% or 20% of what figure?

Schroeder stated that they manage for a harvest of 10% of herring under Age 6 and 20% of those fish Age 6 or older. Overall exploitation would fall somewhere between 10-20%. Discussion ensued regarding Statewide Herring Management Plan.

*Agenda items for Herring Workshop this fall (Linda Brannian on workshop planning team).

Shelikof herring acoustic survey - 36-45 fathom contour 15 miles southeast of Augustine Island.

g. Needs - none for LCI other than new Boston Whaler.

h. New projects - none for LCI

Meacham: Discussed proposed project to gather marine environmental data.

2. UCI - Ruesch and Browning (See Appendix K.)

a. Management - Ruesch stated that 1988 UCI herring fishery had problems as evidenced by reduced harvest from previous years and shift in age structure to the recruit age classes. 1987 season gave the first indication. Data on biomass or exploitation is nonexistent and effort is variable. UCI sac roe fishery is a developing fishery. Older herring show early, younger fish late. Lack of data dictates a conservative approach. Discussion ensued regarding possible interception in Kamishak. Schroeder stated that migratory pattern, roe content, etc., doesn't support this theory. Browning stated that fish were showing up late after fishery closed.

b. Sampling - already discussed - samples will be sent to Homer for processing.

c. Wastage - Browning stated that heavy "culling" occurred but not large scale dumping. Culling is throwing out male herring.

d. Needs - On grounds coverage of fishery with skiff and motor. Regional staff wants more involvement in Tuxedni fishery, more coverage. Browning will be on grounds. Ruesch stated that we should coordinate with F.W.P. for transportation to Tuxedni.

e. No new projects.

C. Groundfish (See Appendix L.)

1. State and Federal

Increased landings. 1988, 24 million pound harvest - 53% increase; only 4% in State waters. Catcher/processor vessels have product transhipped at sea and therefore product doesn't see Alaskan ports.

In 1988, harvest consisted of 17 million pounds of sablefish and 6 million pounds of rockfish. Exvessel value was \$19 million overall. Sablefish accounted for 77% of value. Seward was the port with most landings, approximately 12 million pounds. Prince William Sound has the only state-managed groundfish fishery. Groundfish fish ticket system and reporting system were discussed. Interface with NMFS who enforces regulations in EEZ and tracks catches in same is a problem.

Florey: Amendment to Marine Mammal Act relating to fisheries where a high potential for interaction with marine mammals exists. Fisheries are categorized by potential for interaction with category 1 being highest. Prince William Sound sablefish is category 1; PWS gillnet salmon is category 1; plus others in Alaska. Observers are mandatory for category 1 fisheries.

Action: Copy of Federal register to be faxed to us from Regional Office.

D. Project Reporting - Meacham

See Appendix M on reports produced in Region II. Revisions to Reporting Procedures Manual are out. Key word selection process is being used for archiving and cataloging - Meacham to inform area staff regarding key word procedure. Comments were exchanged on reporting and editing procedures - several complaints were aired regarding Bob Wilbur and editorial process.

"Stifling reporting process". "Dictatorial approach from Wilbur". Mr. Wilbur has sole authority to decide whether report sees light of day. SPRC, Scientific Program Review Committee, is the forum to discuss Wilbur and review problems.

UCI STAFF MEETING, CONTINUED
Thursday, February 9

8:40 A.M.

III. Fish and Wildlife Protection

A. Herring - Sgt. Weldon Martin

1. Kamishak

Posture is "meet the needs of the commercial fishery" whatever equipment or manpower is needed.

Schroeder stated that things went well in Kamishak last year. He would like everything the same. P/V "Balaena" and "Vigillant"; Officers Krusick and Cockerell plus one. No aircraft coverage from FWP in Kamishak. Officer Bruce Bayes will be running P/V Balaena.

Ruesch: Can we work out a one or two day excursion up to Tuxedni gillnet fishery with P/V Balaena in late April? Plans are to do that depending on Kamishak priority.

Schroeder: FWP may want their Whaler there too. Icicle tender could transport.

Rumors of fishing multiple boats discussed. FWP found no evidence of this last year after checking several alleged boats and permits. Two citations were written for fishing below the line. Other than that things went smooth.

B. Salmon

Ruesch stated that FWP coverage needs should be much reduced in UCI salmon fishery. Little or no corridor use is expected in 1989. No river mouth "closed waters" adjustment is expected. The new Kustatan subdistrict fishery will need coverage. Discussion ensued regarding closed waters area problems. Management staff may change closed waters by EO to give more area to fish legally - will check Anadromous Stream Catalog for which streams have a 500 yd. closure.

Plan is to potentially mark one mile closed area around Kustatan, Drift and Big River and eliminate 500 yard closures around other small streams by EO. Discussion regarding "Closed Waters" definition ensued.

Sgt. Dave Loring arrived to discuss Northern District closed waters problems. Three or four cases were written regarding Theodore, Ivan and Lewis Rivers. Several cases lost in court cited under 5AAC 21.350. Ron Stanek of Subsistence Division of ADF&G was cited for Closed Water violation at Little Susitna River mouth.

Fish Creek Terminal Area opening - Sgt. Loring requested as much notice prior to opening as possible. Will fax EO to Loring in Anchorage. Notify Sgt. Rich Graham for placement of markers for Fish Creek Closed Waters area.

Set up Itech mylar plat of offshore set nets overlayed over nautical chart to show seaward distance of eastside set nets. Such a deal for \$6K

Sgt. Martin discussed three-mile corridor cases relating to mean high tide definition. Magistrate McBride ruled that a definite line was not necessary.

IV. Personnel

A. Retirement Incentive Program

Discussion regarding RIP and potential candidates and impacts.

B. Area Office Assistant

Administration has written class specs for new job class - will be Range 11 when new class takes effect. Soldotna CT III's Seagren and Eide would be upgraded.

C. Position Description Questionnaires

UCI PDQ's updated and complete - LCI needs completion.

D. Other - Regional Reorganization

Ken Florey discussed the potential reorganization of regions without new money or new people. The legislature will decide but it can't be done without additional funding. A "Southwest Region" (Region 5) would be formed in addition to the present four regions drawing some positions from Bristol Bay and Westward Region.

V. Computers and Data Processing

Meacham discussed data processing consolidation at regional level with Linda Brannian added as regional Biometrician III; Brian Bue will work under Brannian as a Biometrician II. Another Biometrician I is being recruited. Linda is also in charge of data processing. Virginia Burton is data entry person. Work plan for Brian is in progress-primarily salmon related. Fred Jansen (Programmer) supervises Virginia Burton.

Schroeder requested checking into automated phone-computer database access. system. Public could access catch and escapement data by phone. Good idea - may be some years away. Discussion ensued regarding workability of such a system and resources needed.

Tarbox asked about the status of POP's? Are POP's under regional purview or CFSO purview? Project operational plans are now under regional biometric review and jurisdiction.

Linda Brannian discussed POP's progress, preparation, updating and Juneau review. Herring POP's are first.

Tarbox stated that some of conflict with CFSO has been over biometric interpretation, etc. Are they still involved in the review process for POP's?

Florey said that the review process for MOP's and POP's has changed since Phil Mundy left CFSO.

A. Upgrade of existing machines.

Florey: Use dust covers and we'll think about upgrading existing machines! How much maintenance have computers needed in the LCI and UCI areas?

Waltemyer: Replacement of digitizing equipment in Anchorage?

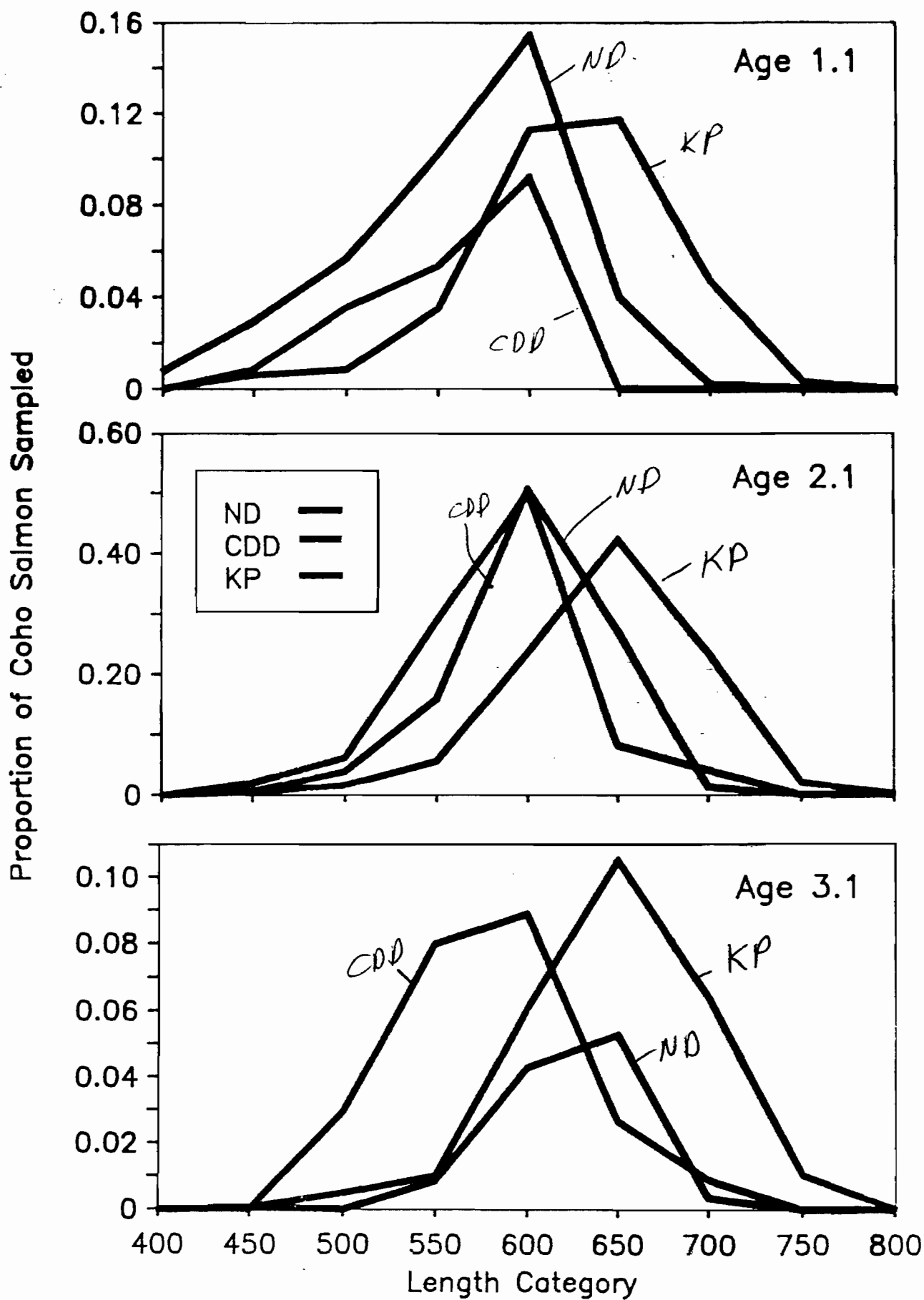
Accelerator cards are ordered for DeskPro 8086 machines.

Tarbox asked if Biosonic integrator board for PC needs to go through IRMEAC approval? Answer is Yes (\$17,000 price tag).

Ruesch: Can we keep the Compaq 8086 machine we borrowed from Region last fall? Linda Brannian needs it back for the Biometrician I position.

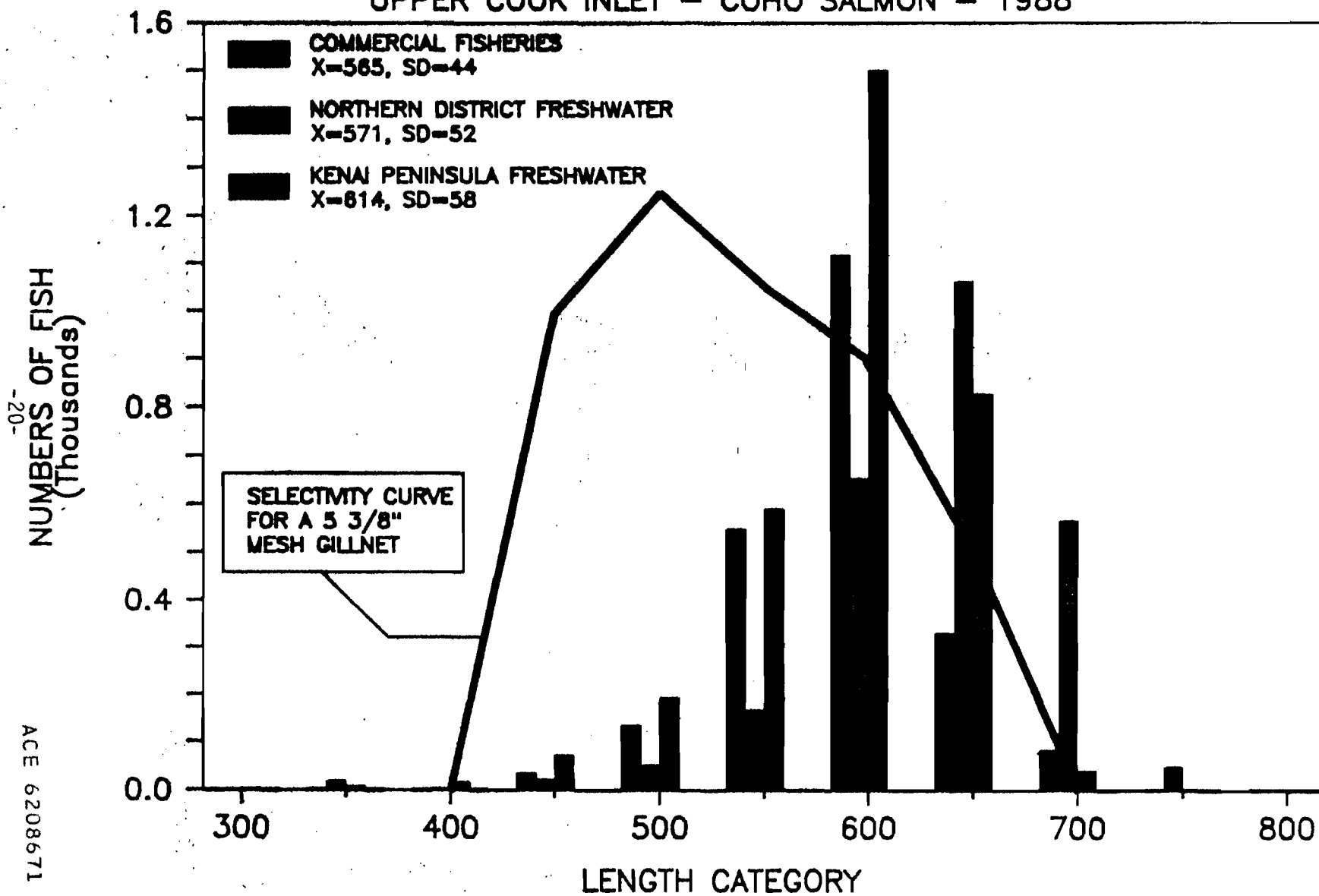
Discussion took place regarding compatibility of tape drives.

UCI/LCI staff meeting was adjourned just prior to lunch on Thursday. Some peripheral discussions between regional staff and LCI personnel took place in conference room before LCI and regional staff left for Homer.

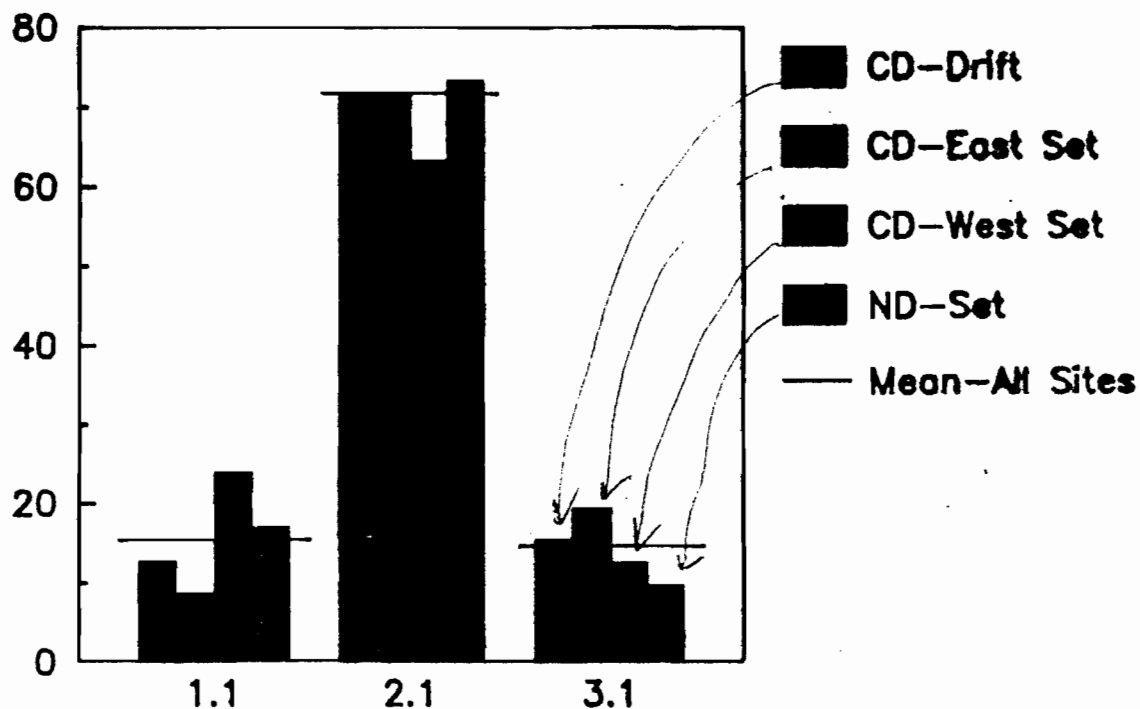


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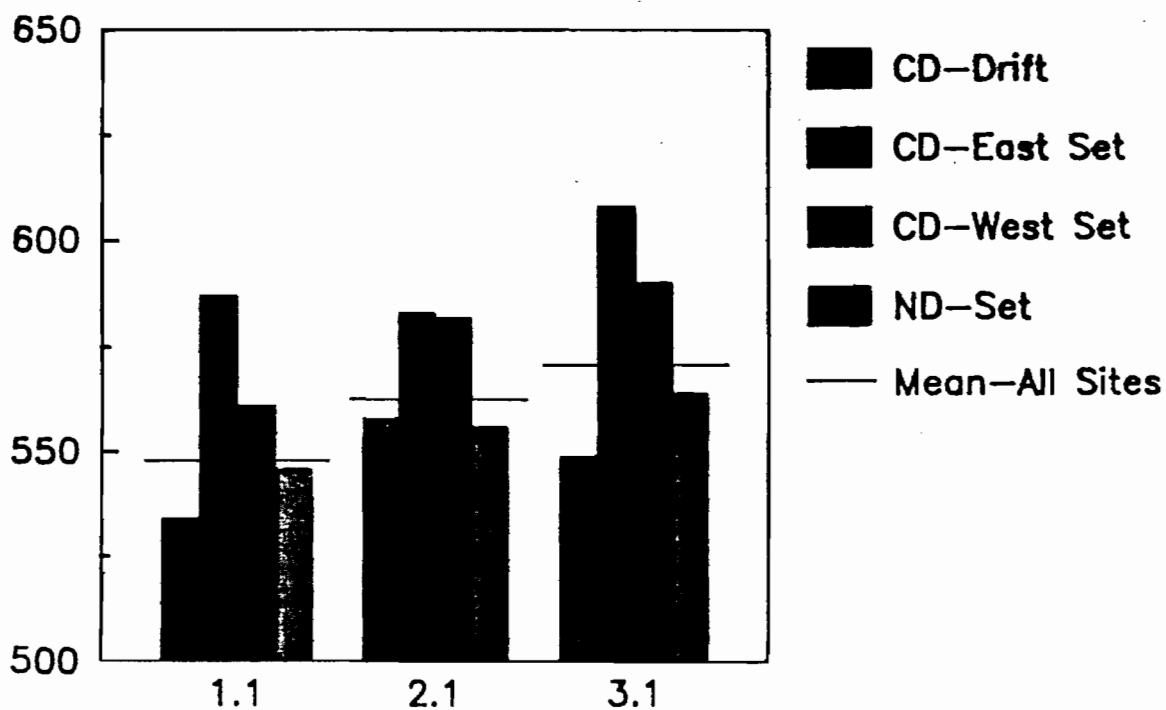
UPPER COOK INLET - COHO SALMON - 1988



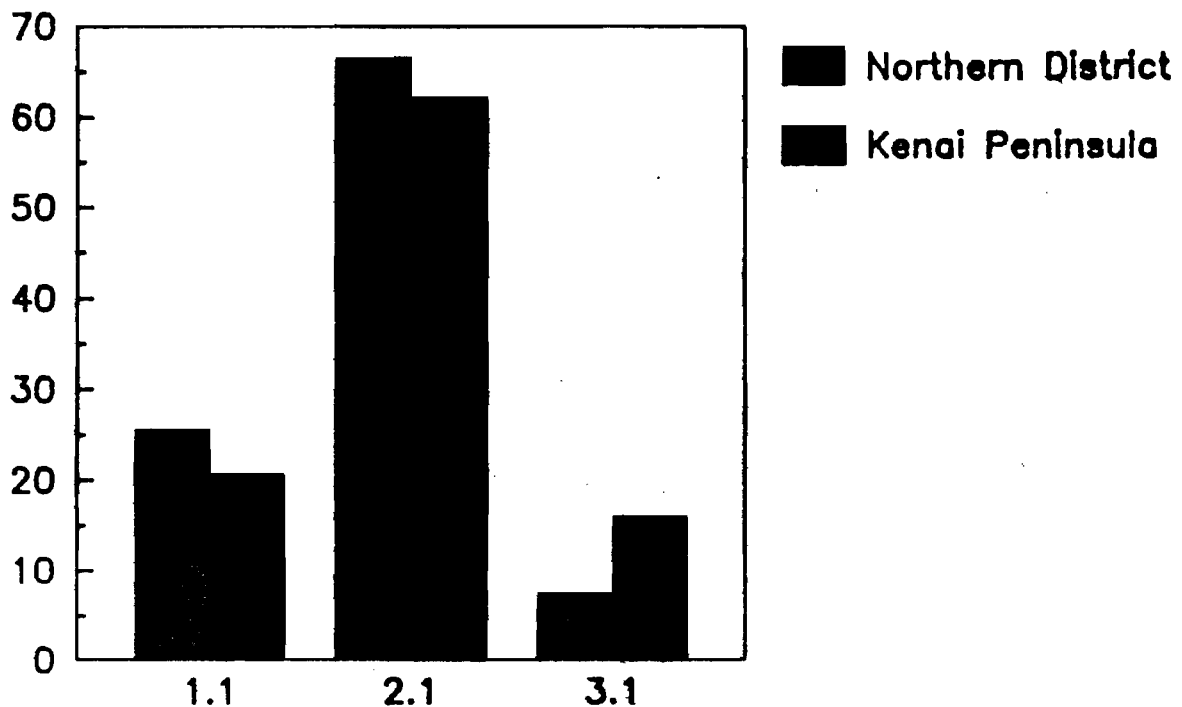
1988 UCI COMMERCIAL COHO SALMON Age Composition



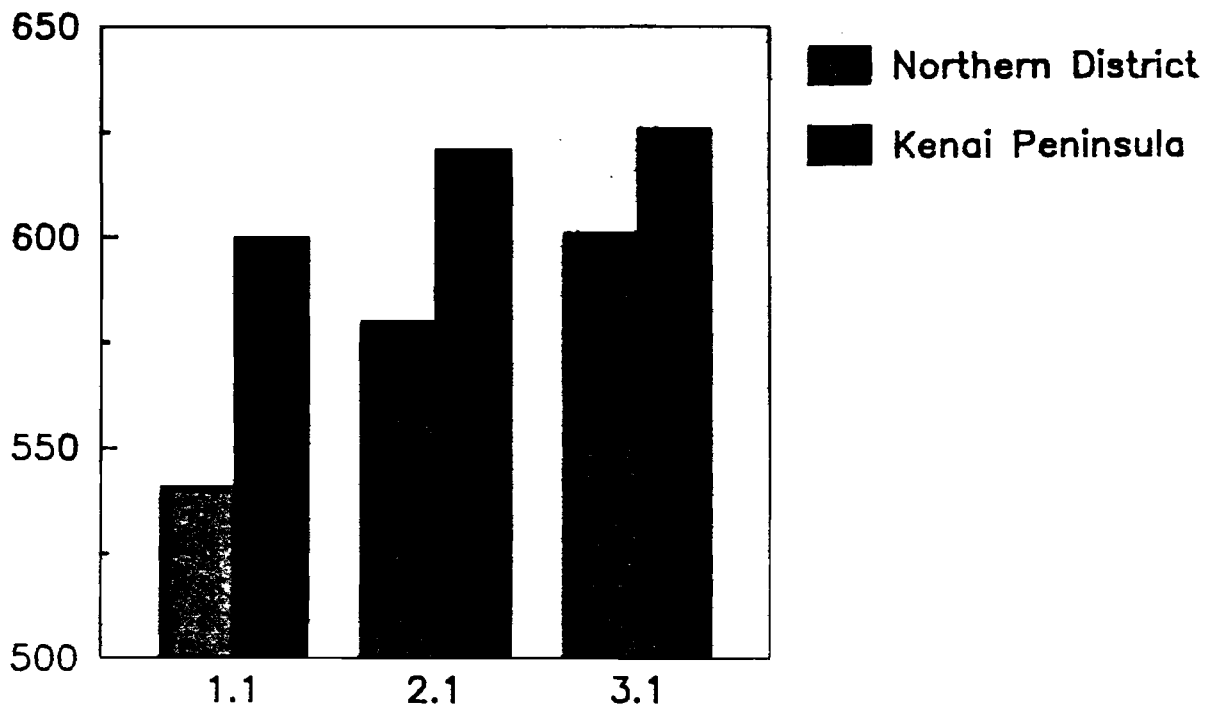
Mean Length At Age

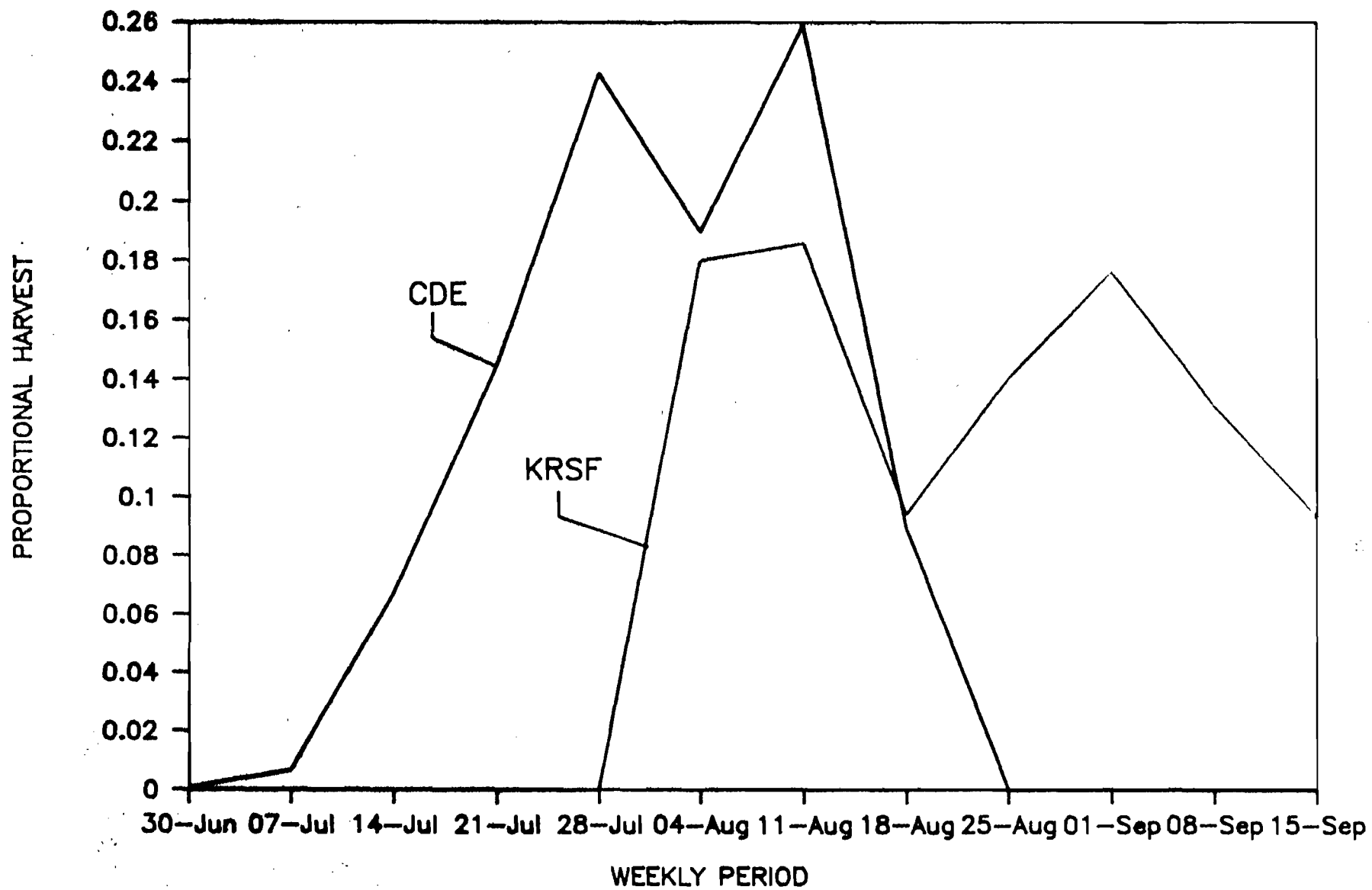


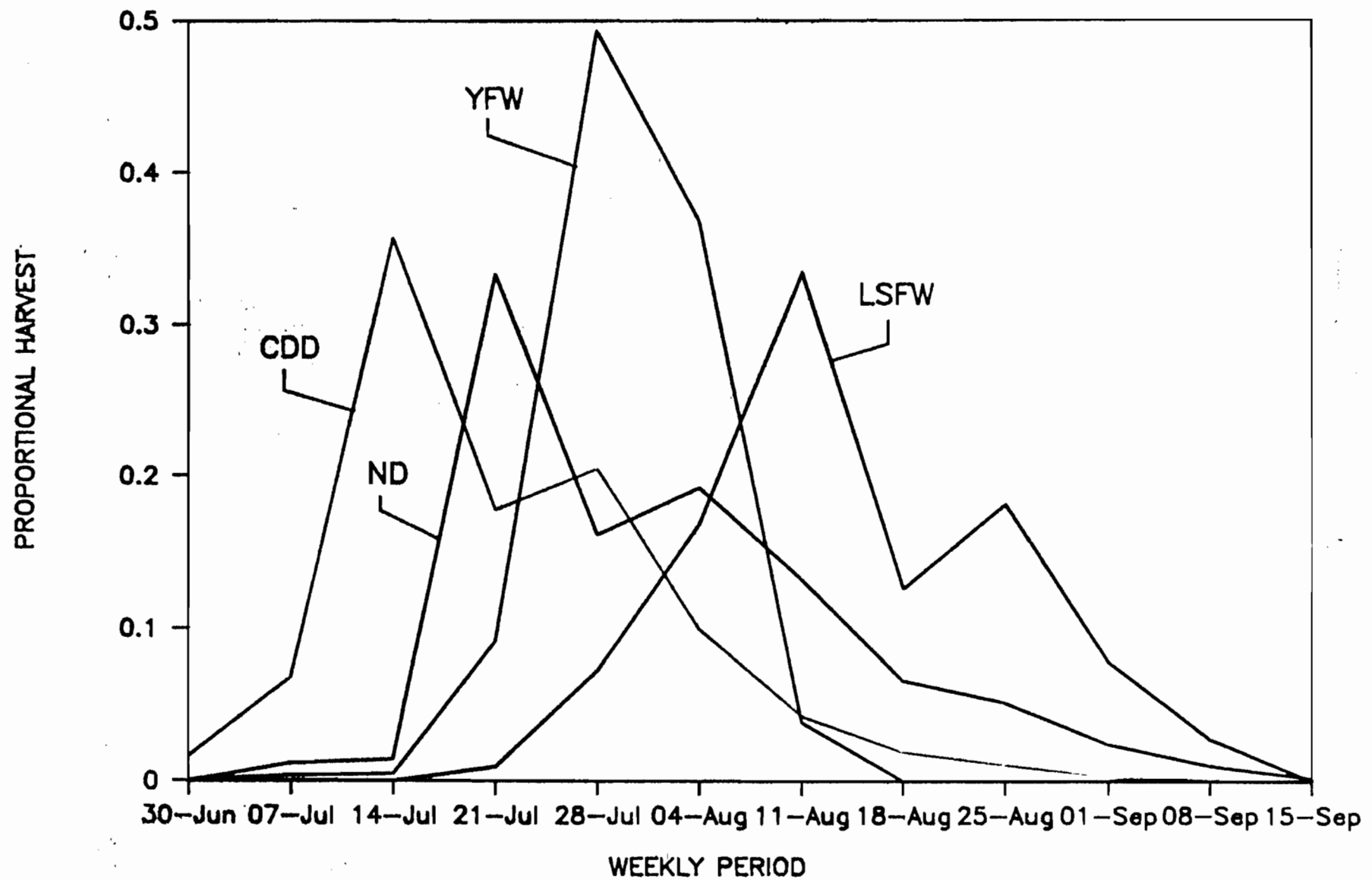
1988 UCI FRESHWATER COHO SALMON Age Composition



Mean Length at Age

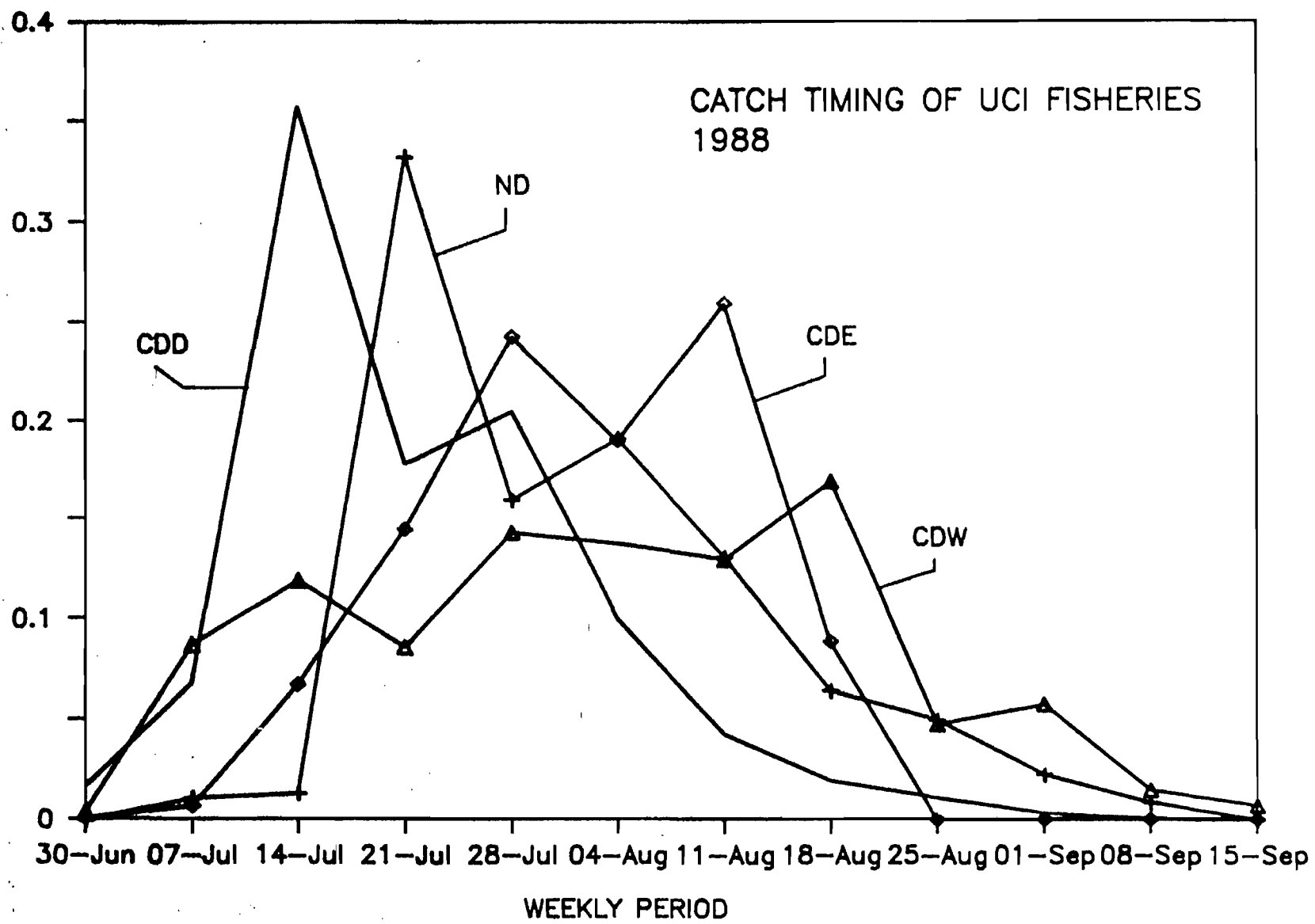






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Appendix B. Lower Cook Inlet sockeye salmon lake stocking program.

Table . Potential sockeye salmon returns to lakes in Lower Cook Inlet from stocking and fertilization projects.

Lake System		Adult Sockeye Returns in Thousands											
		1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Leisure Lake	4/	84.0	114.4	61.5	18.4	21.5	90.0	150.0	200.0	200.0	200.0	200.0	200.0
Chenik Lake	4/	2.7	13.9	10.6	111.3	99.4	164.0	150.0	200.0	200.0	200.0	200.0	200.0
Paint River													
Upper	3/							40.0	10.0	50.0	50.0	80.0	80.0
Lower	3/							25.0	8.0	30.0	30.0	50.0	50.0
Elusivak	3/									40.0	40.0	60.0	60.0
Kirschner Lake		3/							40.0	40.0	40.0	40.0	40.0
Port Dick Lake		3/							35.0	35.0	35.0	35.0	35.0
Hazel Lake		3/								50.0	50.0	50.0	50.0
Scare Point Lake		2/											
Bruin Bay #1		1/									20.0	20.0	20.0
Bruin Bay #2		2/											
Unsus Lagoon Lake		1/									20.0	20.0	20.0
Bear Lake		5/										50.0	150.0
English Bay Lakes		5/										60.0	60.0
Greening Lake		2/											
Petrof Lake		2/											
Ala Is. Lake		2/											
Rocky River Lake		2/ 3/											
Scotted Glacier Lake		2/											
Yowell Lake		3/ 3/											
Total Proj. Returns		88.7	128.3	72.1	129.7	120.9	254.0	365.0	433.0	645.0	665.0	865.0	965.0

1/ Due to be stocked in 1983. Only rough production estimate.

2/ Potential stocking projects which have not yet been approved.

3/ Future potential lake fertilization projects.

4/ Presently being fertilized.

5/ Due to be stocked and fertilized in 1990.

aisalik = 15.0
Kruka = 30.0
Cong Bay = 10.0
Michfik = 20.0
Low Kam = 5.0
UCI = 35.0
115.0

MEMORANDUM

STATE OF ALASKA

TO: Distribution

Date: February 2, 1989

FROM: James Browning 
Assistant Area Mgmt. Biologist
C.F. - Soldotna

Subject: 1988 UCI Fish
Ticket Program Summary

All Upper Cook Inlet fish tickets were completed on schedule for 1988. Entry of all tickets was completed by the end of September and salmon ticket corrections were completed with final 1988 numbers by about 13 October. Correction of herring and razor clam tickets was complete by the end of October. Indications are that this is probably the earliest possible completion date since several processors sent in "stray" tickets throughout the correction process adding to the database.

1985 fish ticket corrections were completed, numbers finalized and Backup diskettes mailed to Computer Services also during 1988.

1984 fish tickets are alive and well here in Soldotna. LCI has completed their corrections manually and since the database is mixed, UCI corrections must be made before either management area can get final numbers. Computer Services made 1984 finfish database diskettes available to us last week and correction of these tickets is a priority. We will have 1984 finalized before the first herring gives it's last breath this season in UCI.

cc. Division of Commercial Fisheries Area & Regional Staff

KASILOF SALMON MIGRATORY BEHAVIOR STUDY

1. 1988 results

- a. sonar counts were approximately 75% of stream survey/weir count
- b. examined the following factors for ^{possible} sources of error:
 - 1) offshore distribution
 - 2) offbottom distribution
 - 3) passage during unmonitored time periods
 - 4) incorrect calibrations
 - 5) counter malfunction
 - 6) significant passage of fish after the counting period
 - 7) significant passage of fish before the counting period
- c. we concluded that the following sources of error were feasible, or information gathered was not sufficient to determine one way or the other with existing operation
 - 1) we were unable (because of lack of overnite monitoring) to determine if there was differential migratory behavior
 - 2) low passage rates may have influenced calibration accuracy
 - 3) offshore distribution possible, but the degree was masked by inaccurate distribution data
 - 4) starting date missed a fairly large bump of fish entering the river early - most likely

2. Possible changes in operations in 1989

- a. examine actual sector distribution by placing the experimental counter (adjustable hit criteria) on the existing substrate
- b. devise testing procedure for using a chart recorder to calibrate the counter in low density or overnite situations
 - 1) will require time from Menin for design changes
- c. if time, evaluate substrateless possibilities
- d. increase crew by one person to schedule calibrations during periods not monitored in 1988.
 - 1) increase in line 100 costs of approximately \$4000
- e. start counting on 1 June
 - 1) increase in line 100 costs of approximately \$8000

Appendix E. Stock ID classification error and multiple analysis of variance.

December 16, 1988

MANOVA analysis for the Kenai, Kasilof and Yentna Rivers

<u>Variable</u>	<u>Kenai</u>			<u>Kasilof</u>			<u>Yentna</u>		
	<u>Time</u>	<u>Sex</u>	<u>I²S²</u>	<u>Time</u>	<u>Sex</u>	<u>I²S²</u>	<u>Time</u>	<u>Sex</u>	<u>I²S²</u>
First Freshwater									
V1	*			*					
V2				*					
V5	*	*							
V7									
V12	*			*		*			
V14				*					
V15				*					
V16	*			*					
V17	*			*					
V18	*			*					
V25	*			*		*			
V26	*	*		*		*			
V28	*			*					
V30				*			*		
Plus Growth									
V61	*	*							
V62 ^b	*	*							
Freshwater combined									
V66	*			*					
V67	*	*							
First Marine									
V70	*								
V72	*								
V80	*			*			*		
V89	*			*					
V93	*								
V94	*								
V104									
V105	*			*			*		
V106	*								
V108									
Second Marine									
V109	*			*			*		
<u>Overall effects</u>									
Freshwater	*			*					
Marine	*	*		*			*	*	

(Continued)

December 16, 1988

MANOVA analysis for the Kenai, Kaslof and Yentna Rivers

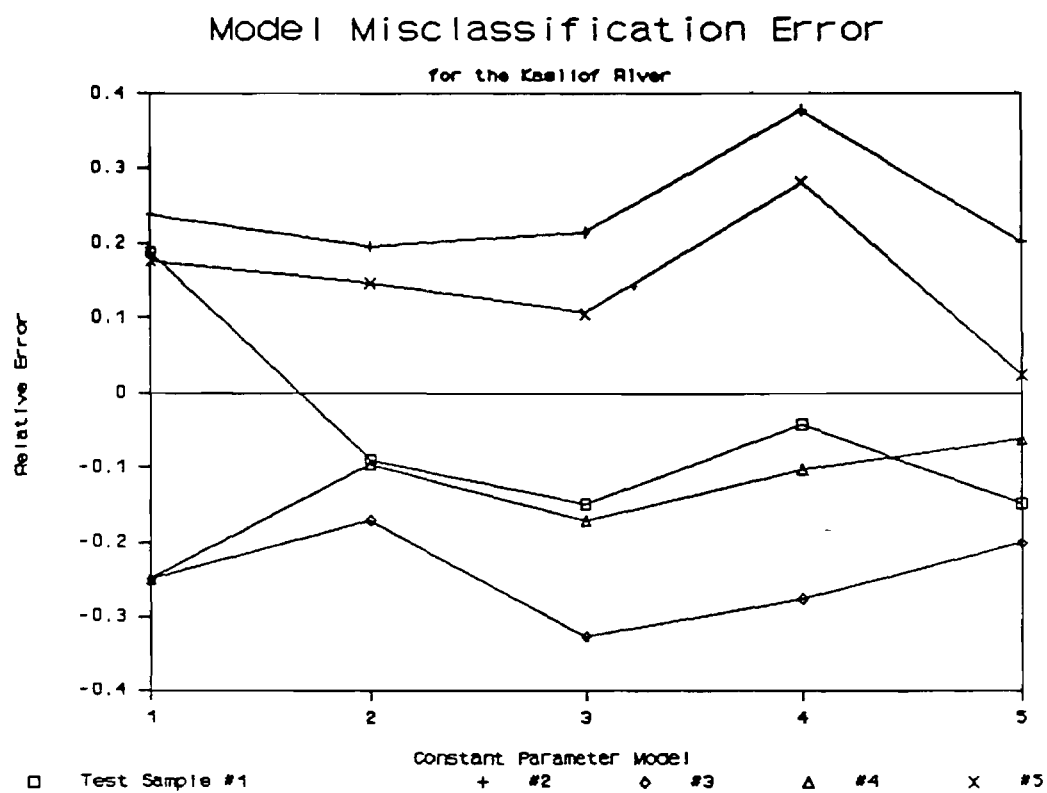
- a 1*8 is interaction effect
- b Variable 62 not included in Kaslof analysis due to an insufficient sample size.

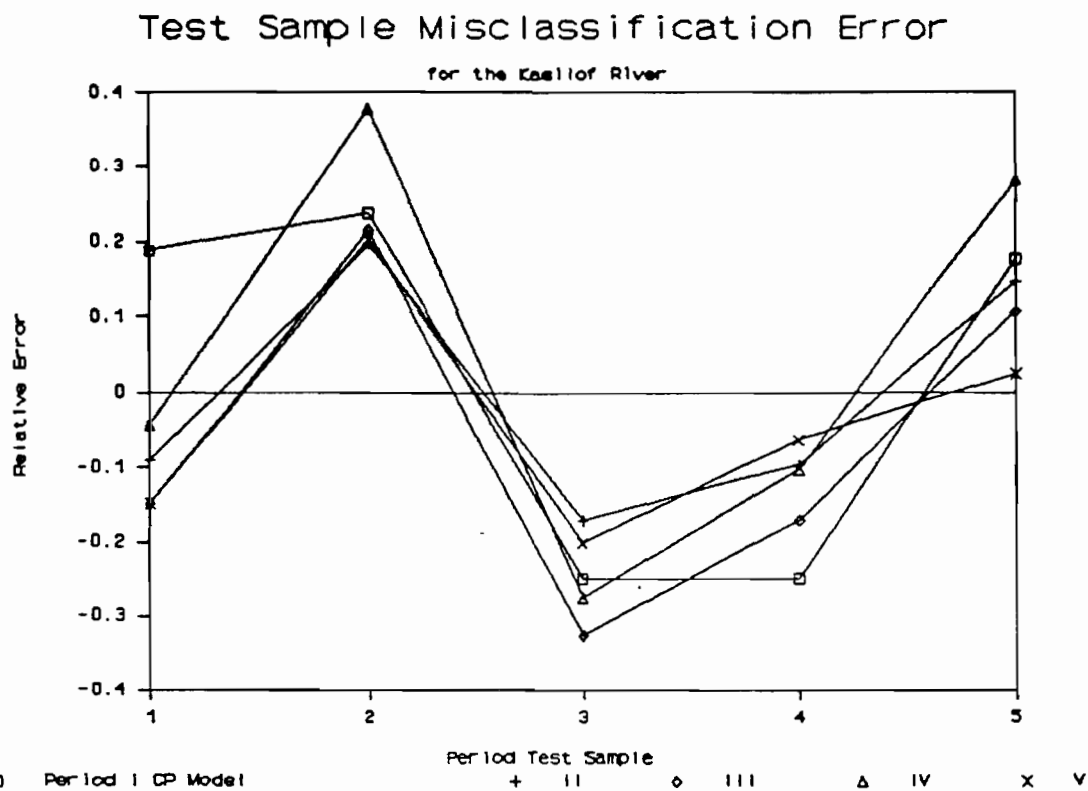
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Table . Relative error of misclassification by period test sample and associated constant parameter model for the Kasilof River, 1988.

Model	Period Test Sample					Range
	I	II	III	IV	V	
1	0.188	0.238	-0.249	-0.249	0.176	0.487
2	-0.089	0.196	-0.171	-0.096	0.147	0.368
3	-0.148	0.214	-0.327	-0.171	0.106	0.542
4	-0.043	0.378	-0.276	-0.102	0.282	0.654
5	-0.148	0.202	-0.201	-0.063	0.024	0.404
Range	0.335	0.182	0.156	0.186	0.259	

Period Test Sample	Period Model					Range
	1	2	3	4	5	
I	0.188	-0.089	-0.148	-0.043	-0.148	0.335
II	0.238	0.196	0.214	0.378	0.202	0.182
III	-0.249	-0.171	-0.327	-0.276	-0.201	0.156
IV	-0.249	-0.096	-0.171	-0.102	-0.063	0.186
V	0.176	0.147	0.106	0.282	0.024	0.259
Range	0.487	0.368	0.542	0.654	0.404	





Drift Stock composition estimates for the Yentna, Kenai, and Kasilof Rivers using the constant model for each time period, 1988.

Date	Model*	Yentna	Kenai	Kasilof
07/11	MOD0723	0.306	0.499	0.196
	MOD1031	0.098	0.591	0.312
	I	0.032	0.718	0.250
	II	0.171	0.664	0.165
	III	0.137	0.727	0.136
	IV	0.260	0.473	0.267
	V	0.211	0.598	0.191
	Mean*	0.162	0.636	0.202

Date	Model	Yentna	Kenai	Kasilof
07/15	MOD0723	0.348	0.599	0.053
	MOD1031	0.108	0.746	0.146
	I	0.124	0.827	0.049
	II	0.162	0.807	0.031
	III	0.138	0.802	0.060
	IV	0.368	0.575	0.058
	V	0.292	0.674	0.034
	Mean	0.217	0.737	0.046

Date	Model	Yentna	Kenai	Kasilof
07/18	MOD0723	0.118	0.802	0.081
	MOD1031	0.088	0.824	0.087
	I	-0.045	1.009	0.036
	II	-0.032	1.031	0.001
	III	-0.056	1.038	0.018
	IV	0.137	0.790	0.074
	V	0.260	0.764	-0.024
	Mean	0.053	0.926	0.021

- * MOD723 is in-season model and MOD1031 is post season model. Period models I through V were built using the following

samples:

I -	Yentna	707.717	Kenai	711.712	Kasilof	623.630
II -	"	"	"	"	"	705.708
III -	"	"	"	"	"	711.713
IV -	"	"	"	.720	"	711.713
V -	"	726.811	"	.726	"	711.713

- * Mean is representative of the period models only.

Appendix F. UCI five year research study plan.

FIVE YEAR RESEARCH PLAN - YEAR ONE RESULTS

Project: Hydroacoustic enumeration of Adult Salmon

Recommendation: Conversion of all sonar counting operations to substrateless.

Action: Converted Crescent to substrateless operations in 1988.

Recommendation: Establish procedure for estimating error associated with sonar counting operations.

Action: Basic procedure for estimating error established after meeting with Linda Brannian. A decision on whether the extra money should be spent for this task is needed.

Recommendation: Evaluate available hydroacoustic equipment for suitability for present and future tasks.

Action: Evaluation of the existing UCI Bendix equipment indicated that rock inhibitors and hit criteria should be added to all counters. The use of substrateless operations dictates this recommendation. First priority is Kasilof River counters.

Action: In 1988 staff worked with Al Menin to modify a BioSonic chart recorder to work with Bendix side scan sonar units. The possibility of using the chart recorder for counting in low density situations was explored.

Recommendation: All sonar equipment should be calibrated and a documentation file be established for each unit.

Action: Files will be established prior to 1989 field season. All counters will be matched with transducer and kept together as unit. As soon as calibration facilities become available counters will be sent for calibration.

Recommendation: Assess migratory behavior of adult sockeye salmon in vicinity of counting operations.

Action: No action pending modification of counters and chart recorder purchase.

Project: Offshore Test Fishing

Recommendation: Examine historical data base for relationships of catch to environmental parameters.

Action: None

Appendix F. (p 2 of 4)

Recommendation: Evaluate migratory corridors relative to sample stations.

Action: None

Recommendation: Prepare run reconstruction and exploitation rates by period for historical data base.

Action: Work to start prior to 1989 field season.

Project: Stock Identification of Sockeye Salmon

Recommendation: Evaluate model selection procedures and overall accuracy of the procedure.

Action: Completed for 1988 field season. Report in preparation.

Recommendation: Evaluate historical data base and adjust if necessary.

Action: None

Project: Salmon Catch and Escapement Sampling

Recommendation: Examine existing program to assess how representative the samples are.

Action: Drift fleet harvest examined for frequency distribution of the catch by boat. Report prepared.

Action: Length/weight relationships of sockeye salmon examined. Report prepared.

Action: Suggest mainstem Susitna River sampling at Sunshine Station. At Crescent River a trap will be installed for the 1989 field season for in river sampling.

Recommendation: Examine bias or error associated with estimating age composition for days not sampled in a fishery.

Action: None.

Project: Escapement Objective Definition

Recommendation: Develop Susitna River subsystem evaluation program.

Appendix F. (p 3 of 4)

Action: Program defined for adults using weirs. Funding in FY90 budget.

Action: Euphotic volume measurements taken for 24 lake systems in 1988. Report prepared.

Recommendation: Evaluate fish wheel mark/recapture techniques and mainstem sonar options for long term escapement monitoring.

Action: None.

Recommendation: Develop production model for Kasilof River drainage.

Action: Continued long term studies of Tustumena Lake in 1988. Report prepared by FRED Division being reviewed.

Recommendation: Implement a long term program for the Kenai River system to assess sockeye salmon production.

Action: Sonar estimates of rearing fry in Kenai and Skilak Lakes were made in 1988.

Action: Limnological data collected for Skilak Lake in 1988 by FRED Division.

Action: Smolt program planned for spring of 1989.

Project: Computer Data Base for Escapement Information

Recommendation: Prepare data base system similar to catch program.

Action: Completed in 1988. Computer programs and documentation file prepared by Fred Jansen.

Action: Report on stream survey data prepared by staff.

Project: Analysis of Commercial Harvest Data.

Recommendation: Evaluate data base for potential relationships relative to management and research objectives.

Action: None.

Project: Climatic and Hydrological Data Base

Recommendation: Prepare user friendly computer data base of

Appendix F. (p 4 of 4)

climatic and hydrological data on major river systems.

Action: None.

Project: Evaluation of Eastside Set Net Fishery.

Recommendation: Define the specific operational characteristics of the eastside set net fishery.

Action: Outer boundary of set nets mapped in 1988.

Project: Marine Environment-Oceanographic Studies

Recommendation: Develop programs to evaluate migratory behavior of sockeye salmon relative to oceanographic conditions.

Action: None.

Project: Spawning Distribution of Kenai River Sockeye Salmon.

Recommendation: Radio tag adult sockeye salmon to define spawning distribution.

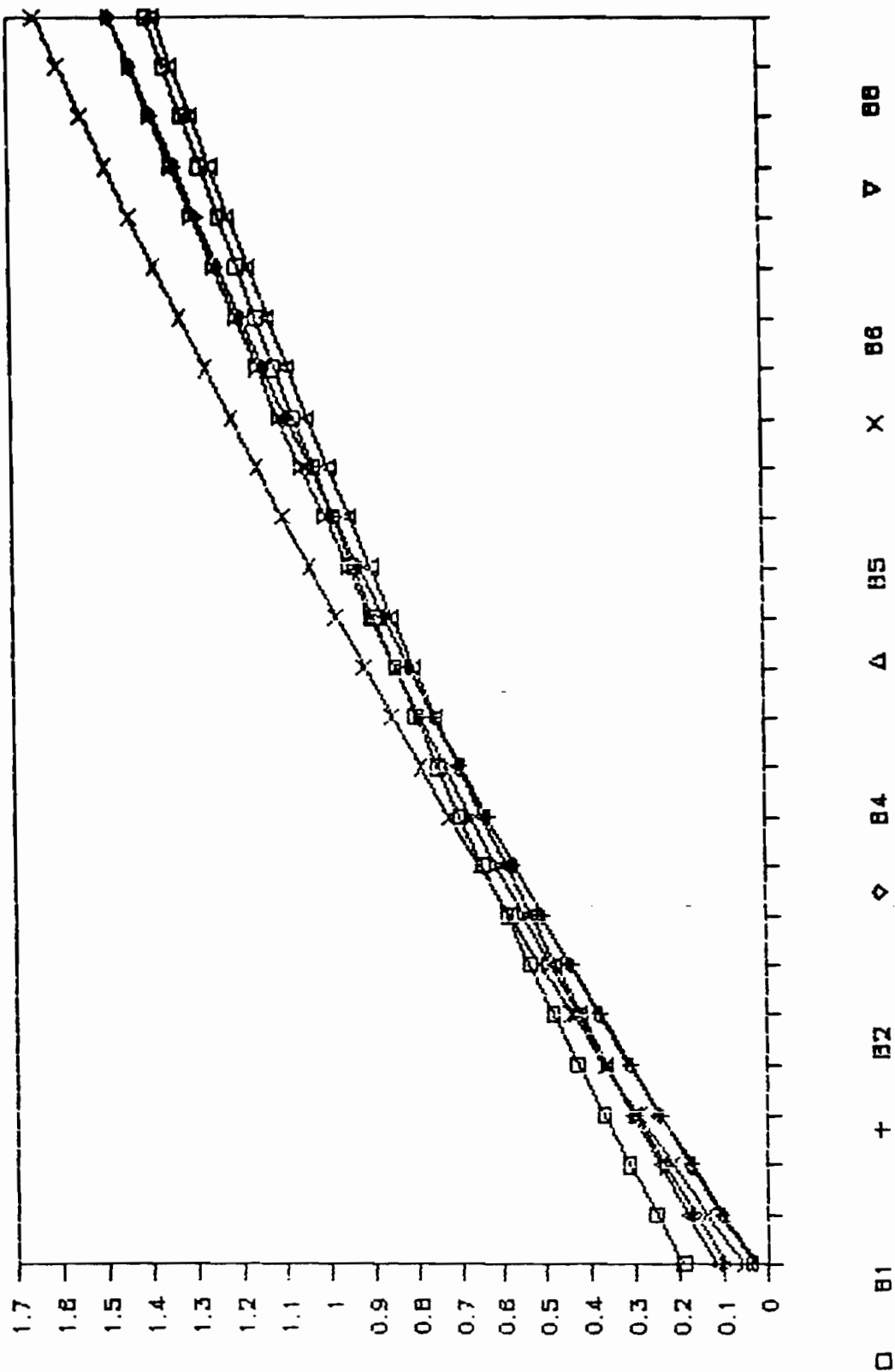
Action: None. A radio tagging program for the Kasilof River system is planned for 1989.

Project: Chum, Pink, Coho, and Chinook Salmon Escapement Studies.

Recommendation: Develop escapement estimates for the above species in the Susitna and Kenai River systems.

Action: Sport Fish Division continued program to develop Kenai River chinook salmon counter in 1988. USFWS, in co-operation with staff, radio tagged coho salmon in the Kenai River in 1988. Similar studies planned for 1989.

KENAI 12,1



ANALYSIS OF COVARIANCE: Length/weight regression by site by age class by sex for the years 1980-88

notation from Zar

filename: 2covarke.wk1

computational										interpretive				residual
River	year	age	sex	sum X	sum X^2	sum Y	sum Y^2	sum X * Y	N	sum x^2	sum y^2	sum x * y	sums of squares	
Kenai	81	1.2	1	320.711	1978.468	32.768	24.046	203.282	52	0.477	3.397	1.185	0.453	
Kenai	82	1.2	1	283.709	1750.254	25.503	20.338	158.654	46	0.454	6.199	1.362	2.113	
Kenai	84	1.2	1	395.953	2450.187	39.067	29.381	243.245	64	0.519	5.534	1.547	0.921	
Kenai	85	1.2	1	333.315	2057.718	31.664	21.179	196.321	54	0.331	2.612	0.875	0.300	
Kenai	86	1.2	1	767.336	4749.582	86.559	74.335	539.421	124	1.158	13.912	3.777	1.595	
Kenai	88	1.2	1	273.336	1698.381	31.674	26.179	197.81	44	0.368	3.378	1.045	0.409	
k = 6														
sum N = 384														
Pooled regression													5.792	
common regression														
										3.307	35.032	9.791	6.044	
Total regression				2374.36	14684.59	247.235	195.458	1538.733	384	3.378	36.278	10.022	6.542	
slopes														
Ho: B(1)=B(2)=B(3)=ect.				F(stat)=		3.238935								
df =				5		372								
intercepts														
Ho: A(1)=A(2)=A(3)=etc.				F(stat)=		6.214522								
df =				5		377								

-40-

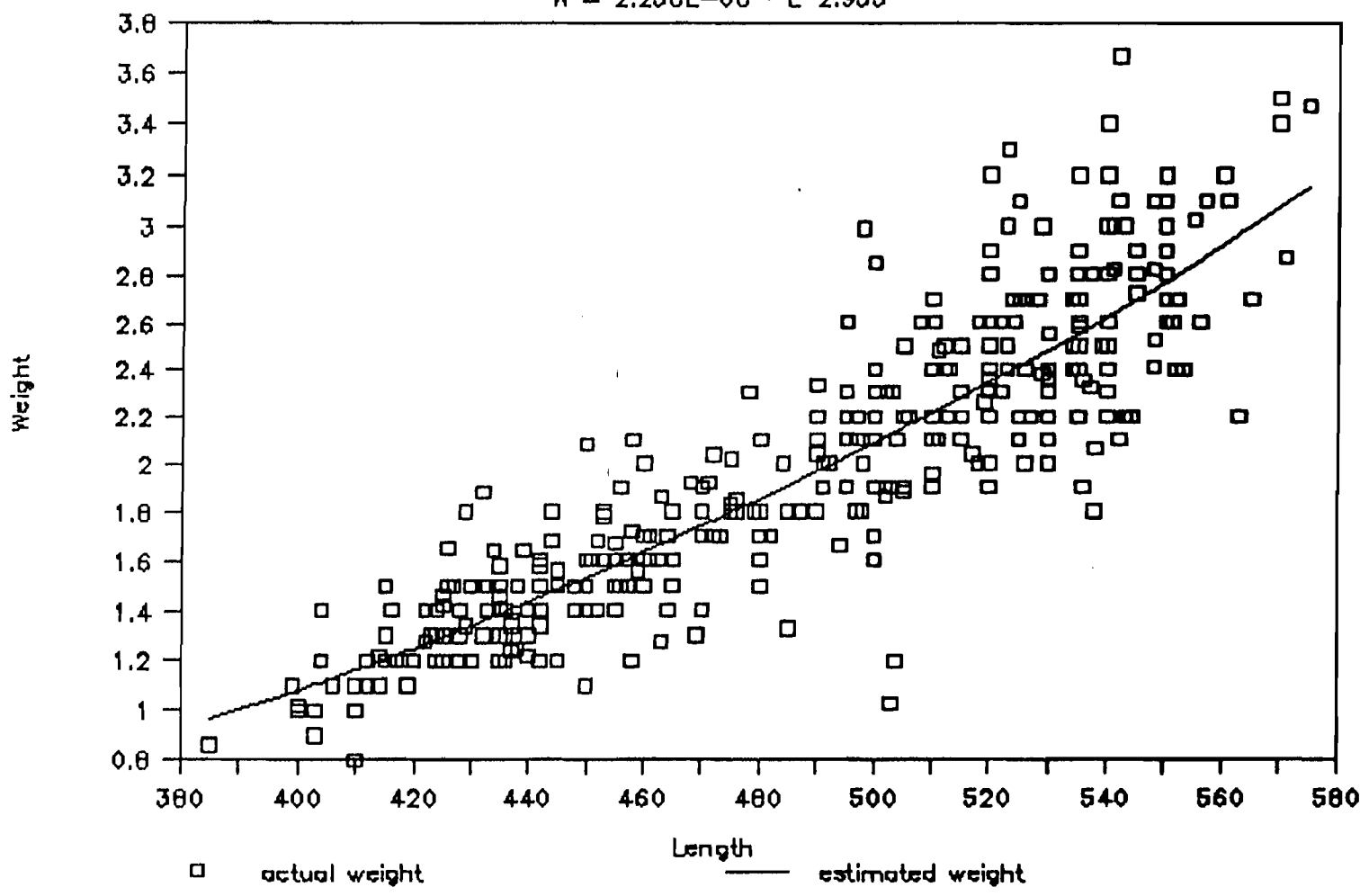
ACE 6208691

Appendix G. (p 3 of 5)
 Summary of covariance analysis (slope only) of length/weight data collected by age
 class and sex for the main sockeye salmon producing systems of Upper Cook Inlet.
 (file name: COVARSLM.WK1)

River	age class	sex	All Years Combined			year removed	One Year left out		
			Signif F statistic?				Signif F statistic?		
			.05	.01	.005		.05	.01	.005
Crescent	1.3	1	no						
		2	no						
	2.2	1	no						
		2		no		1984	no		
	2.3	1	no			1985	no		
		2	no						
Kasilof	1.2	1		no		1987	no		
		2	no		1985	no			
	1.3	1				1982	no		
		2				1986	no		
	2.2	1	no						
		2	no						
	2.3	1	no						
		2	no						
Yentna	1.2	1	no						
		2			1988	no			
	1.3	1	no						
		2	no						
Susitna	1.2	1	no						
		2	no						
	1.3	1		no		1983	no		
						1981	no		
						1980	no		
	2.3	2	no						
		1	no						
		2	no						
Kenai	1.2	1			no	1981	no		
		2	no						
	1.3	1	yes	yes	yes	all	yes	yes	yes
		2			no	1988	no		
	2.2	1	no						
		2	no						
	2.3	1	no						
		2				1984		no	

Kenai 121 sockeye

$$W = 2.238E-08 * L^{2.953}$$



Appendix G. (p 5 of 5)

Actual and estimated weights of Kenai R. 121 sockeye

(est. weight from common regression: $W = \text{antilog constant} * L^{\wedge}x \text{ coeff}$)

File name: KE121ERR.WK1

Date: 2/6/89

Year	mean actual weight	mean est weight	est/act	percent diff	sample size
1981	1.941	1.886	0.972	2.83%	50
1982	1.858	1.905	1.025	-2.53%	44
1984	1.920	2.009	1.046	-4.64%	62
1985	1.841	1.903	1.034	-3.37%	52
1986	2.122	1.961	0.924	7.59%	122
1988	2.127	2.149	1.010	-1.03%	42

Table 2. Estimated adult sockeye salmon production based on euphotic volume for selected lakes of the Susitna River drainage lakes, Alaska.

Lake	Surface Area (acres)	Euphotic Depth ^a (m)	Euphotic Volume (10 ⁶ m ³)	Adult Production ^b (fish)
Bunco	106	1.5	0.64	1,600
Byers	368	10.0	14.89	37,200
Caswell	159	8.5	5.47	13,700
Chelatna	4,181	9.2	155.67	389,200
Eightmile	115	4.8	2.23	5,600
Fish Creek	111	8.2	3.61	9,000
Fish	132	8.0	4.24	10,600
Hewitt	697	8.6	24.25	60,600
Judd	316	18.6	23.79	59,500
Larson	437	10.2	18.04	45,100
Lockwood	233	4.7	4.43	11,000
Movie	110	6.0	2.67	6,700
Neil	115	6.5	3.03	7,600
Puntilla	90	9.7	3.53	8,800
Red Salmon	113	3.0	1.37	3,400
Red Shirt	1,272	1.4	7.21	18,000
Shell	1,487	6.9	41.52	103,800
Spink	252	9.2	9.38	23,500
Stephan	899	7.0	25.47	63,700

continued

Table 2. (p 2 of 2).

Lake	Surface Area (acres)	Euphotic Depth ^a (m)	Euphotic Volume (10 ⁶ m ³)	Adult Production ^b (fish)
Sucker	273	3.0	3.31	8,300
Swan	385	2.8	4.36	11,000
Trapper	1,188	1.4	6.73	16,800
Trinity	308	6.2	7.73	19,300
Whiskey	271	8.6	9.43	23,600
TOTAL	13,618		383.00	957,600

a. This value represents a seasonal mean.

b. Estimated adult sockeye salmon production was calculated by using a total return of 2500 adults per euphotic volume unit (10⁶m³).

Table 3. An estimate of the total return of sockeye salmon by brood year to the Susitna River drainage, Alaska 1968 - 1982.

Brood year	Escapement	Total Return
1968	61,010	186,393
1969	41,346	180,579
1970	44,371	261,389
1971	114,707	473,437
1972	91,927	677,688
1973	116,093	341,614
1974	71,849	334,863
1975	108,000	482,304
1976	111,000	959,981
1977	232,724	458,041
1978	93,429	802,583
1979	153,049	1,141,178
1980	187,910	1,206,470
1981	338,542	943,538
1982	262,687	671,909
Average	135,242	608,131

Source: Waltemyer (ADF&G, personal communication).

SUMMARY OF UPPER COOK INLET HISTORIC
SALMON SPAWNING INFORMATION

by

Bruce E. King

and

Randall Z. Davis

Regional Information Report¹ No. 2S89-2

Alaska Department of Fish and Game
Division of Commercial Fisheries
333 Raspberry Road
Anchorage, Alaska 99581

January 1989

¹The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate needs for up-to-date information, reports in this series may contain preliminary data.

INTRODUCTION

Information concerning the usage of selected Upper Cook Inlet (UCI) streams for spawning by salmon species has been collected since the 1920's. Methods, means, data recording, and uses of the data however, have changed throughout the period of use. In earlier years, these data constituted the only available information on the known spawning streams of importance to management of the commercial fishery. To date, these methods still provide the only information on the bulk of tributaries to the major salmon producing drainages of the inlet.

For various reasons, notably timing, stream survey data proved unusable for management of the commercial fishery by the Alaska Department of Fish and Game (ADF&G) Commercial Fisheries (CF) Division, and as a result, stream surveys have gradually received a lower priority in both the time and budgetary scheme of this division. Other divisions of the Department, as well as other state, private and federal organizations however, rely heavily on stream survey information for a variety of research and management purposes. Among these uses is the continuous updating of the Anadromous Stream Catalog, and the need for information necessary to plan potential resource development. These data needs are currently within the purview of the Division of Habitat.

Unfortunately, access to the complete base of information collected from within UCI waters is difficult given the diversity of organizations doing the collecting, and the formats and circulation of published results. Results are often not published, or are presented as summary data for one or more drainages. This difficulty is compounded by the variety of data storage mechanisms available to the collecting agencies. For example, the Division of Commercial Fisheries records consist primarily of hand written records stored in files (by tributary) housed in the Soldotna office. Requests for information can be satisfied only by an active search of these files, which contain information collected sporadically over the previous 60 years.

As a result of the time constraints involved with these type of data requests, and the unwieldy process involved in accumulating data collected by all agencies, the Commercial Fisheries Division staff decided to put all existing information into an electronic format accessible by anyone requesting the information. Since this is a working document, we envision that it will be continuously updated as new information becomes available. We also encourage all interested agencies to critically review the document and provide corrections and additional information from their files. We are particularly interested in providing exact dates of previous surveys, and literature citations which will allow the reader to obtain more complete information regarding the details of the survey.

DATA SOURCES

Virtually all of the stream surveys conducted prior to 1960 were done by the United States Fish and Wildlife Service and its predecessors. These data were apparently not published in a format accessible today, and currently

Appendix I. (p 3 of 4)

exist only as handwritten notes or forms in the CF files. Most of the surveys conducted since statehood by the Division of Commercial Fisheries exist in the same format, although some effort has been made since the mid-seventies to document results (in the form of peak counts) in appropriate data report series'. These reports however, do not provide specific details regarding timing and number of surveys, or other possibly pertinent details.

The same method of data storage and reporting appears to be the norm for most of the agencies collecting information within the Inlet. The attached appendices reflect this in that many of the data sources are listed only as the collecting ADF&G Division or agency. Appendix A.1 lists the current locations of appropriate contacts for these unpublished data. Published data sources are listed in the literature cited section of this report.

The one major exception to this trend is the collection of information from the Susitna River compiled by Hoffmann and Crawford (1986). The publication, which forms the basis for much of this document, was the first compilation of historical information regarding all known escapement studies conducted within the Susitna drainage.

DESCRIPTION OF OUTPUTS

Data are organized and presented by UCI region, stream or major tributary in Appendices B.1 through B.9. In an effort to accurately identify the location of the existing information and provide for inclusion of future data, the Anadromous Stream Catalog number for each body of water has been included. In addition, the United States Geological Survey (USGS) map where the water body is located is provided. As previously noted, a literature citation is listed if available. Where no source is given, it is assumed that the information was collected by the Soldotna office of the Division of Commercial Fisheries.

Appendix B.3. Escapement survey counts of adult salmon for systems in the Yentna River drainage.

Location Code/ Stream Name/ USGS Map No.	Year	Date	Chin	Sock	Coho	Chum	Pink	Survey Method	Comments	Data Source
247-41-10200-2053										
Yentna River	1974	7/13-8/17		54978				Mark-recapture	Modified Peterson	Barrett (1975b)
Tyonek C-2	1974	7/13-8/14		3746	1036	345	2534	Yentna Station fishwheel catch		Barrett (1975b)
Talkeetna B-4										
Yentna Station	1981	6/29-9/07		139401	17017	19765	36053	Side-scan sonar	Escapement estimate	ADF&G (1981)
	1982	6/27-9/05		113847	34089	27830	447257	Side-scan sonar	Escapement estimate	ADF&G (1983a)
	1983	6/30-9/05		104400	8900	10800	60700	Side-scan sonar	Escapement estimate	Barrett et al. (1984)
	1984	7/01-9/05		149400	18200	26500	369300	Side-scan sonar	Escapement estimate	Barrett et al. (1985)
	1985	7/01-8/08		107100	9200	12100	121000	Side-scan sonar	Escapement estimate	ADF&G,CF
	1986	6/29-8/07		92100	23500	56700	735700	Side-scan sonar	Escapement estimate	ADF&G,CF
	1987	7/01-8/13		65900	6300	17900	84100	Side-scan sonar	Escapement estimate	ADF&G,CF
	1988	7/07-8/11		52300	12200	49000	137000	Side-scan sonar	Escapement estimate	ADF&G,CF
247-41-10200 -2053-3020 Kroto Slough Tyonek C-2										
247-41-10200 -2053-3020-4029* Whitsol Creek * Tyonek C-2									Note - TYONEK C-2	
	1984	9/10	0	0	55	0	0	0 Aerial count, helicopter GOOD, TRM 0.0		Barrett et al. (1985)
	1984	9/27	0	0	20	0	0	0 Aerial count, helicopter GOOD, TRM 0.0		Barrett et al. (1985)
	1984	10/06	0	0	0	0	0	0 Aerial count, helicopter GOOD, TRM 0.0		Barrett et al. (1985)
	1984	7/31	0	0	0	0	0	0 Ground survey Poor, TRM 0.0		Barrett et al. (1985)
	1984	8/09	0	0	0	0	0	0 Ground survey Poor/Good, TRM, 0.0		Barrett et al. (1985)
	1984	8/19	0	0	0	0	0	0 Ground survey Poor, TRM 0.0		Barrett et al. (1985)

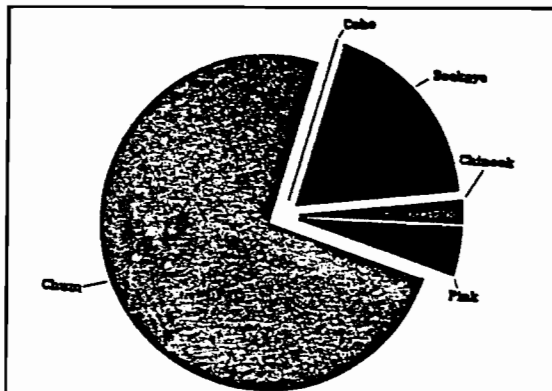
HIGH SEAS FOREIGN GILL NET FISHERIES

by Charles P. Meacham

There are five separate high seas gill net fisheries presently operating in the Gulf of Alaska and the Bering Sea, all of which have the potential for taking Alaskan salmon. Two of these fisheries, the Japanese mother-ship fishery and the Japanese land-based fishery are directed salmon fisheries. The other three fisheries are squid fisheries prosecuted by Japan, South Korea, and Taiwan. All five fisheries use monofilament gill net with a relatively standard approximate 4 1/2 inch stretch mesh size.

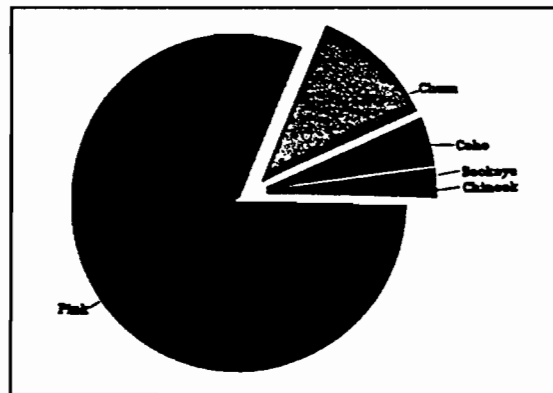
JAPANESE MOTHER-SHIP FISHERY:

Immediately prior to 1988, this fishery consisted of 129 fishing vessels which delivered their catch to three mother-ships. Each catcher boat fishes approximately 10 miles of monofilament gill net each day during a season that extends from June through July. The 1988 harvest reported by Japan was about 1.2 million salmon. The United States had no observers on mother-ships or catcher boats during the 1988 fishery. Prior to the 1988 season, fishing was conducted both within and outside the USFCZ with observers present when fishing within the USFCZ. Failure to obtain a marine mammal permit resulted in the 1988 fishery being conducted exclusively in international waters. Japan has requested that this fishery be allowed to convert from a mother-ship fishery to a land-based fishery, delivering catches directly to Japanese ports rather than to mother-ship processing vessels. The greatest concern regarding this fishery is the interception of Alaskan chinook salmon and potential to take sockeye salmon.



MOTHER-SHIP CATCH COMPOSITION

JAPANESE LAND-BASED FISHERY: This fishery consists of 1257 fishing vessels which deliver their catch directly to fishing ports in Japan. Each vessel fishes approximately 10 miles of monofilament gill net per day (approximately 1,600 miles of net for the fleet) during a season that extends from late May through early July. The 1988 catch as reported by Japan was about 6.3 million salmon. There are no United States observers associated with this fishery. The greatest concerns regarding this fishery are unknown levels of interceptions of Alaskan chinook, coho, and sockeye salmon and North American steelhead.



LAND-BASED CATCH COMPOSITION

SQUID FISHERIES: Gill net fisheries for squid are conducted in the north Pacific by Japan, South Korea, and Taiwan. The total number of vessels participating in the squid fishery is approximately 720. The length of gill net deployed by each vessel is unrestricted but generally ranges between 10 and 30 miles in length, as determined by the size of the vessel. The largest component of the squid fleet, that of Japan, is restricted to a 7 month fishing season (June-December) with a northern boundary that changes by month in an attempt to maintain the fleet south of cooler waters where salmon concentrate. Taiwan imposes similar restrictions. Considerable concern exists over these vessels actually directing their efforts towards catching salmon, and numerous documented acts of illegal out-of-area fishing.

REGULATION OF HIGH SEAS FISHERIES:

The Japanese mother-ship and land-based directed salmon fisheries are regulated by (1) the International North Pacific Fisheries Commission (INPFC) which includes representation by the United States, Canada, and Japan and (2) a Soviet-Japan fisheries treaty. For the most part, INPFC provisions control effort levels, fishing season, and fishing area while the Soviet-Japan treaty establishes a catch quota and includes provisions whereby Japan pays the Soviet Union a fisheries cooperation fee of \$24.3 (1987) million or about \$0.45 per pound of quota.

Regulation of squid gill net fisheries is by domestic laws enacted by the three countries involved. Both Japan and Taiwan have established time and fishing area regulations that if adhered to protect Alaskan salmon stocks in most, but not all, instances. South Korea has yet to adopt similar regulations.

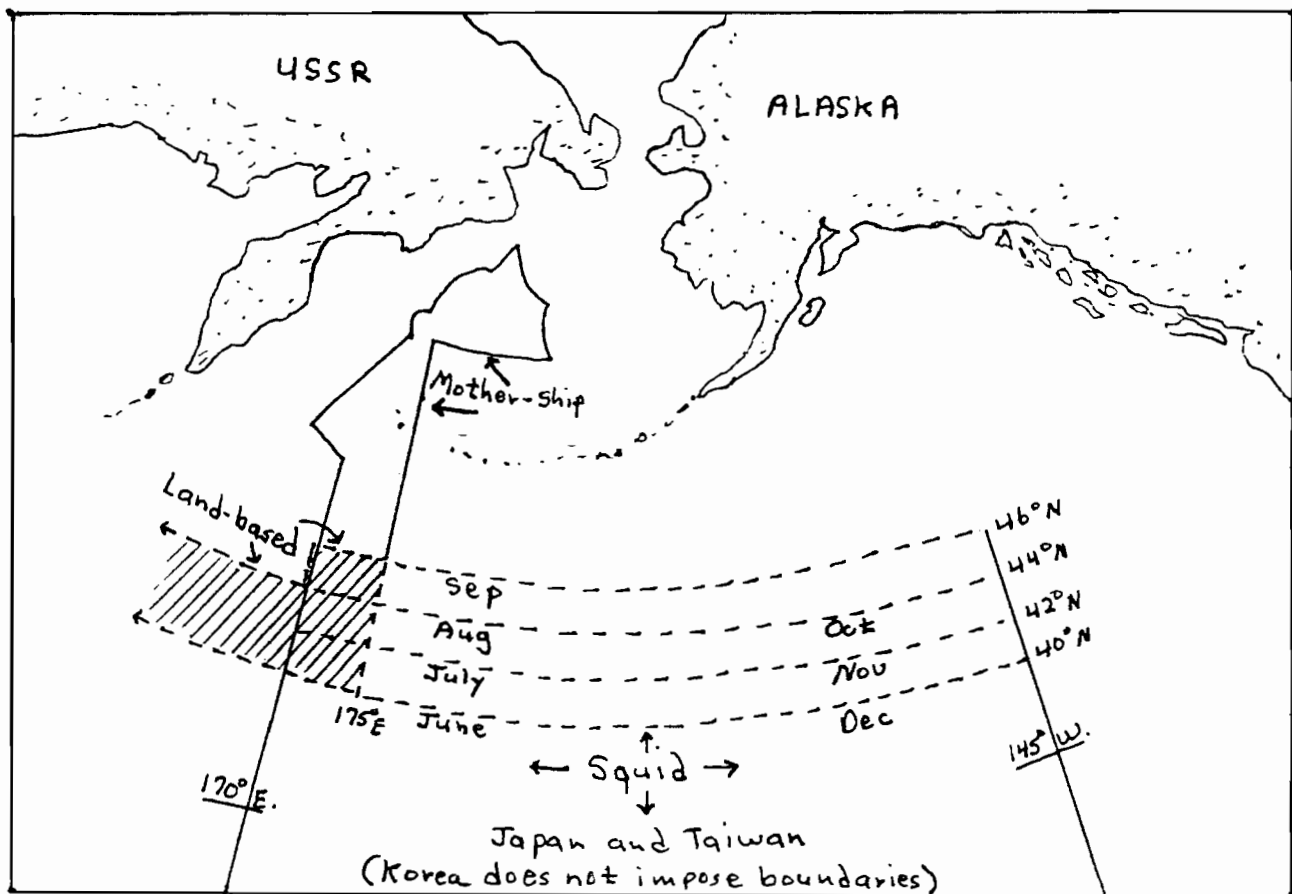
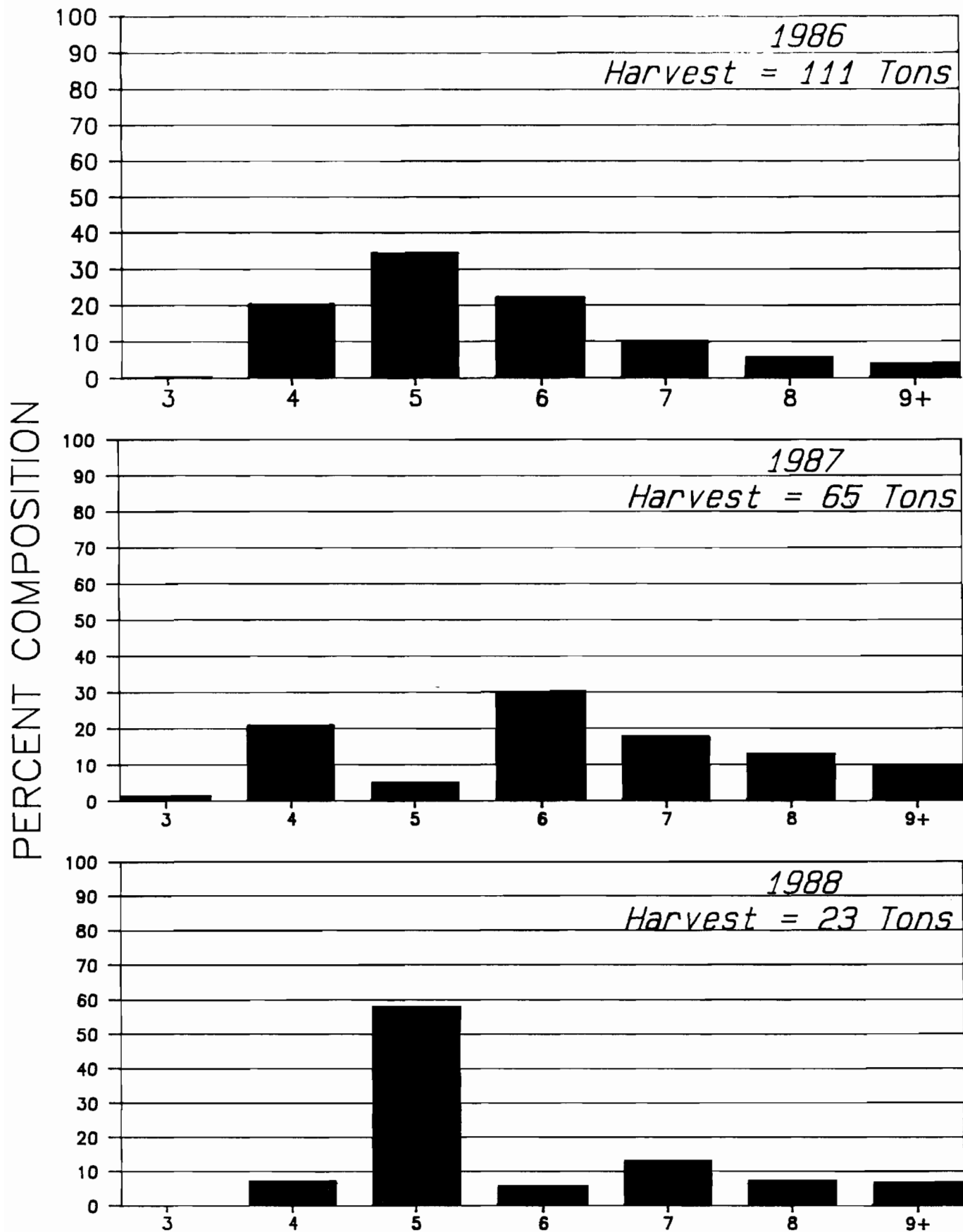


Table . Salmon catch (in thousands) by the Japanese mothership (MS) and landbased driftnet (LB) fisheries, 1957-1987.

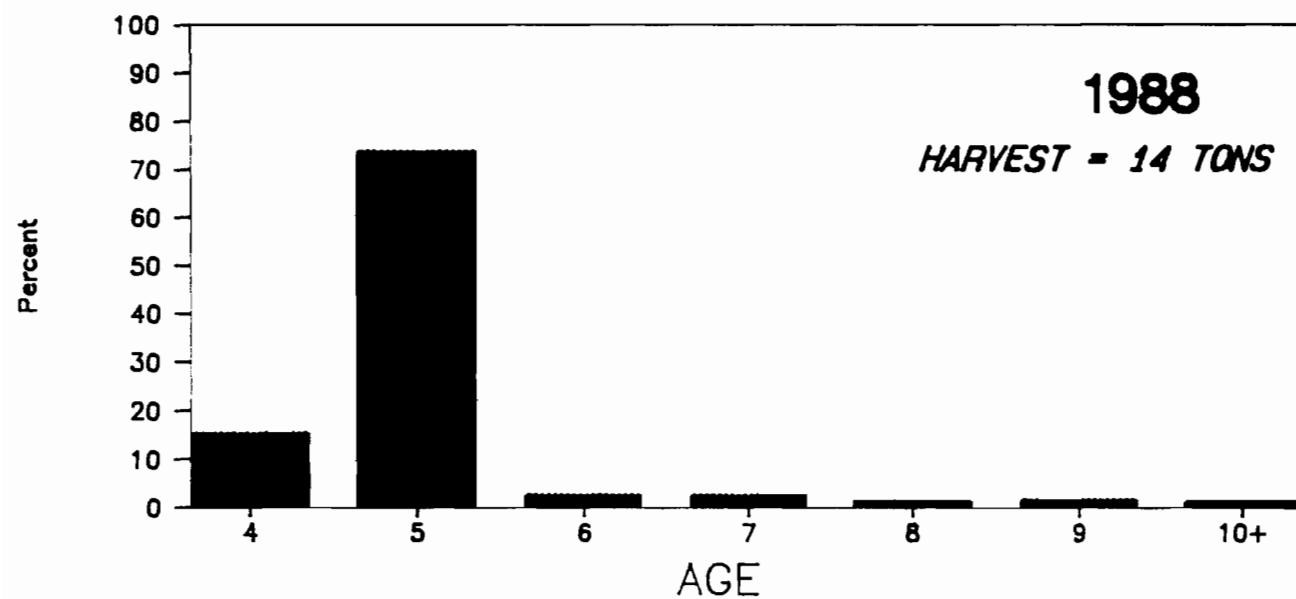
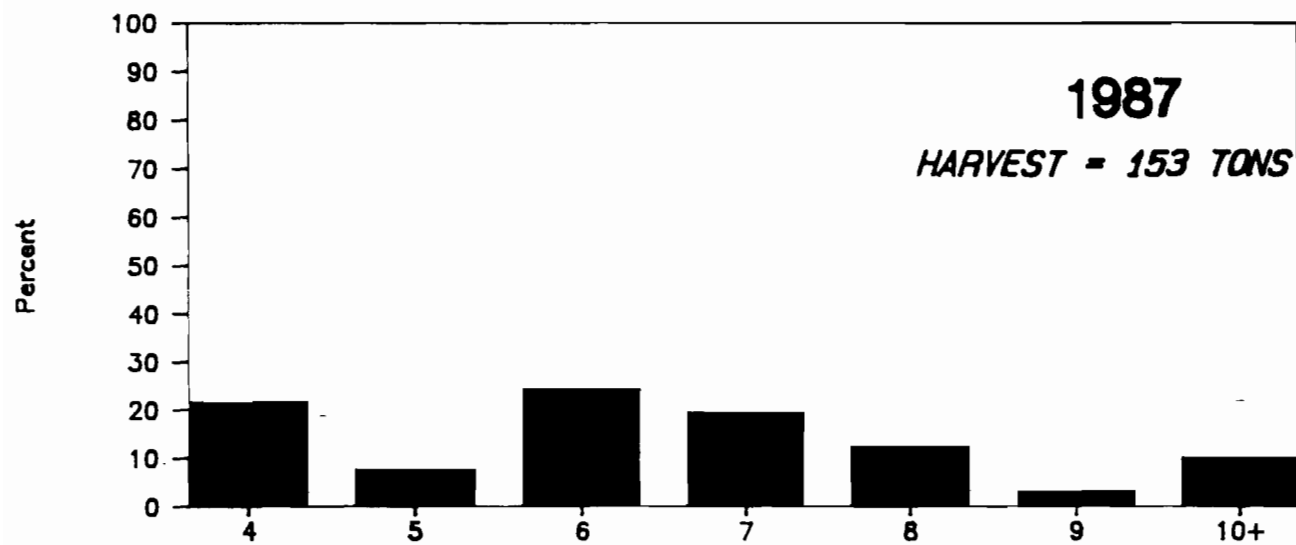
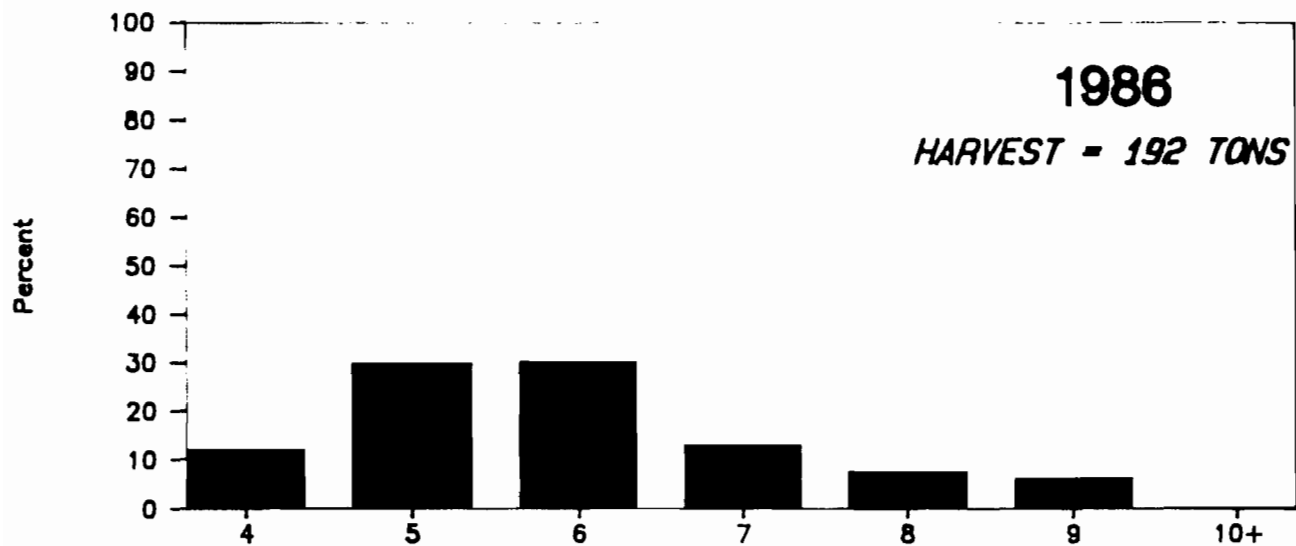
Year	Sockeye		Chinook		Chum		Pink		Coho		Total	
	MS	LB	MS	LB	MS	LB	MS	LB	MS	LB	MS	LB
1957	20,000	494	31	33	11,908	4,081	27,881	35,551	442	526	60,262	40,685
1958	12,026	888	46	45	18,787	9,155	15,546	24,833	3,393	785	49,798	35,706
1959	9,125	832	68	42	12,859	9,045	18,856	35,129	1,423	1,178	42,331	46,226
1960	12,879	1,601	180	113	10,517	8,684	1,885	20,129	962	1,346	26,423	31,873
1961	12,998	1,173	31	79	6,128	6,104	3,263	34,559	284	1,454	22,704	43,369
1962	10,590	154	122	124	6,372	7,577	1,139	14,021	1,532	1,289	19,755	23,165
1963	8,903	18	87	102	5,858	7,538	6,732	31,255	1,895	1,492	23,475	40,405
1964	7,097	108	410	195	8,641	8,956	2,281	17,247	3,535	1,624	21,964	28,130
1965	12,038	159	185	93	6,036	8,330	4,429	29,142	1,177	1,913	23,865	39,637
1966	7,254	703	208	112	8,562	11,848	2,553	16,032	469	1,458	19,046	30,153
1967	8,087	2,566	128	110	6,837	11,078	7,781	23,051	226	1,329	23,059	38,134
1968	6,373	2,769	362	88	8,107	8,457	3,823	15,899	898	1,421	19,563	28,634
1969	5,935	2,495	554	83	7,721	4,908	6,972	23,610	1,306	3,328	22,488	34,424
1970	6,944	2,966	437	101	9,638	6,585	1,726	13,403	180	2,259	18,925	25,314
1971	3,554	3,026	206	134	9,968	6,250	8,202	16,977	454	2,373	22,384	28,760
1972	3,184	3,711	261	103	13,373	8,598	3,795	14,839	614	2,421	21,227	29,672
1973	2,613	3,308	119	162	7,857	7,614	12,018	20,650	989	3,794	23,596	35,528
1974	2,282	3,155	361	186	9,283	12,179	7,756	11,242	1,085	3,559	20,767	30,321
1975	2,171	2,969	162	135	7,367	11,480	14,654	15,347	356	3,550	24,710	33,481
1976	2,266	3,291	283	201	10,436	10,646	7,207	10,879	828	2,751	21,020	27,768
1977	1,508	1,289	93	146	5,996	6,230	9,100	15,041	79	1,722	16,776	24,428
1978	1,882	1,292	105	210	3,802	3,488	1,853	7,846	609	2,512	8,251	15,348
1979	2,186	756	126	161	3,277	2,661	3,405	11,190	281	1,199	9,275	15,967
1980	2,412	787	704	160	3,098	2,697	561	11,612	656	1,205	7,431	16,461
1981	2,224	859	88	190	2,539	2,509	4,094	11,292	615	1,209	9,560	16,059
1982	1,738	723	107	165	3,217	2,930	1,654	11,035	1,183	1,201	7,899	16,054
1983	1,655	828	87	178	3,081	2,395	4,324	11,308	297	1,122	9,444	15,831
1984	1,597	305	82	92	3,275	2,214	1,430	9,727	786	894	7,170	13,232
1985	1,138	155	66	100	2,836	1,432	2,717	9,973	128	766	6,885	12,426
1986	729	138	60	77	1,925	940	390	6,345	65	478	3,169	7,978
1987	667	143	39	77	1,822	920	966	4,442	35	468	3,529	6,050
1988	225	116	26	47	892	751	56	5,083	0	0	1,199	5,997

Appendix K. UCI historical commercial herring harvest and age structure.
Table 7. Commercial herring harvest, Upper Cook Inlet, 1973-1988.

Year	Harvest (Tons)			
	Eastside	Chinitna Bay	Tuxedni Bay	Total
1973	13.8	0	0	13.8
1974	36.7	0	0	36.7
1975	6.2	0	0	6.2
1976	5.8	0	0	5.8
1977	17.3	0	0	17.3
1978	8.3	55.3	0	63.6
1979	67.3	96.2	24.8	188.3
1980	37.4	20.0	86.5	143.9
1981	86.2	50.5	84.9	221.6
1982	60.2	91.8	50.2	202.2
1983	165.3	49.2	238.2	452.7
1984	117.5	90.6	159.0	367.1
1985	121.7	47.4	220.5	389.6
1986	178.9	111.1	191.9	481.9
1987	130.5	65.1	152.5	348.1
1988	50.7	23.4	14.1	88.2



CHINITNA BAY HERRING AGE STRUCTURE



TUXEDNI BAY AGE STRUCTURE

Appendix L. LCI and PWS groundfish summary.

INTRODUCTION

For the purposes of bottomfish management, Region II (Central) includes those inside waters of Prince William Sound, and state waters (0 to 3 miles) from Cape Suckling, located at 143 degrees 53 minutes west longitude, up Cook Inlet, and west to Cape Douglas located at 58 degrees 52 minutes north latitude (Figure ??).

Fish ticket records for groundfish harvested from state and adjacent federal waters, received from companies operating within Region II, are entered into the National Marine Fisheries Service (NMFS) maintained database via remote computer terminal located in Homer. This procedure is the product of a cooperative agreement between NMFS and the Alaska Department of Fish and Game (ADF&G).

Fisheries contributing to the bottomfish harvest reported into Region II include the domestic longline fishery and catcher processor trawl fishery on sablefish, Pacific cod, rockfish and flatfish in the Western Yakutat and Central Gulf portion of the Gulf of Alaska Exclusive Economic Zone (EEZ), the Prince William Sound state waters longline sablefish fishery, the Cook Inlet pacific cod longline fishery and the outer Kenai Peninsula rockfish jig fishery.

The harvest of groundfish from both state and federal waters reported by companies operating in Region II in 1981 totaled 308,560 pounds. Since that time, developing fisheries in both state and federal waters have contributed to a steady , and in some years dramatic increase in Region II groundfish landings. The Region II groundfish harvest total in 1988 (January 1 through October 25) was in excess of 36.9 million pounds . This compares to a reported harvest of 24 million pounds in 1987, and 11.8 million pounds in 1986. Groundfish harvested from federally managed waters accounted for 96% of all reported landings. The harvest of approximately 17

million pounds of sablefish and 500,000 pounds of rockfish, were landed in Seward in 1988. The port of Cordova received over 3 million pounds of groundfish and Homer approximately 1.4 million pounds (Table 24).

The estimated value of the groundfish harvest reported by companies operating within Region II in 1988 was approximately 19.4 million dollars. This compares to the 11.6 million dollar total ex-vessel value reported in 1987, and 11.1 million reported value in 1986 (Table 25). The 1988 ex-vessel value estimate includes approximately 13.7 million ex-vessel dollars from landings reported by vessels delivering to on-shore processors and approximately 5.7 million dollars ex-vessel from catcher processors. Sablefish harvested primarily from the longline fishery in the Gulf of Alaska EEZ accounted for 15 million dollars, 77% of the 1988 total ex-vessel value. This compares to the 7.6 million dollar ex-vessel value of Region II sablefish in 1987. The increase in the ex-vessel value of sablefish in 1988 was due both to an increase in the harvest and to an increase in the average ex-vessel price per pound (\$1.00 in 1987 and \$1.51 in 1988, dressed eastern cut).

Rockfish, most of which were harvested by catcher processors, accounted for approximately 3.5 million ex-vessel dollars, 19% of the Region II ex-vessel total for 1988. In the absence of ex-vessel value information from catcher processors, the estimated value of rockfish harvested by these vessels was determined from the average price paid for rockfish by on-shore processors. The actual value of groundfish caught and processed at sea may have been greater than that processed by land-based processors.

Table 26 summarizes the average price per pound, ex-vessel value processed on-shore and at sea, and percent of total estimated ex-vessel value of Region II groundfish by species for 1988.

A total of 1,377 groundfish deliveries were made by 561 vessels associated with companies operating within Region II (January 1

The trawl fishery in the Gulf of Alaska contributed dramatically to reported rockfish landings, which have gone from just over 8 million pounds in 1987 to 16.2 million pounds in 1988 (Table 22). This fishery is dominated by large vessels capable of processing their own catch. These catcher processors frequently use regional ports only for transshipment of completely processed fisheries products, significantly reducing the infusion of ex-vessel dollars from these products into local economies.

Flatfish (flounder and sole) landings reported to Region II, predominately from trawl effort in the Gulf of Alaska, also increased, going from approximately 882,000 pounds in 1987 to approximately 1.4 million pounds in 1988.

PRINCE WILLIAM SOUND SABLEFISH FISHERY

Full domestic utilization of sablefish resources in the Gulf of Alaska EEZ and limited entry to sablefish resources in inside waters of northern Southeast Alaska brought about an increase in effort on sablefish stocks in inside waters of Prince William Sound starting in 1985. In that year, 29 vessels landed approximately 383,000 pounds of sablefish to processors in Seward, Valdez, Cordova, Whittier and Anchorage (transported by truck from Seward). During the course of that year's fishery a guideline harvest range was established using sablefish catch per unit of area information from inside waters of northern Southeast Alaska. The Prince William Sound fishery, which opened by regulation on January 1, was closed for the first time by emergency order in late November of 1985. Since that time the fishery has required a department permit, and been opened by emergency order on April 1 concurrent with EEZ waters of the Gulf of Alaska. The harvest in the past 3 years has been limited to the approximately 200,000 pounds, (the approximate

OUTER KENAI PENINSULA NEAR-SHORE ROCKFISH JIG FISHERY

The harvest of near-shore rockfish from the outer Kenai Peninsula totaled just over 248,000 pounds (January 1-October 25,1988). Most of these near-shore pelagic rockfish were harvested with jig or hand troll (sport rod and reel) gear and generated approximately 109,000 ex-vessel dollars. This compares to a similar level of harvest in 1987 when 249,477 pounds of rockfish were harvested. The estimated ex-vessel value of the 1987 fishery was approximately 110,000 dollars.

Table 23. Total groundfish harvest (pounds) reported from companies operating within Region II including harvest by species, percent composition by species, and percent processed on-shore and at sea from Jan. 1 - Oct. 25, 1988.

Species	Total Reported Harvest (Round wt)	Percentage of Total Reported Harvest	Round Wt Caught and Processed at Sea	Round Wt. Processed Shore-side	Percent Processed at Sea	Percent Processed Shore-side
Sablefish	17,026,266	46%	1,992,073	15,034,193	12%	88%
Rockfish	16,282,609	44%	15,380,421	902,184	94%	6%
Pacific Cod	1,814,104	5%	370,077	1,444,027	20%	80%
Flatfish	1,383,014	4%	1,360,486	23,528	98%	2%
Other	418,721	1%	361,775	56,946	86%	14%
Totals	36,925,714	100%	19,464,832	17,460,878	53%	47%

Table 25. Total ex-vessel value of groundfish reported by companies operating in Region II 1981-1988*.

Year	P.cod	Flatfish	Rockfish	Sablefish	Other	Total
1981						\$109,850
1892						\$157,600
1983						\$245,950
1984						\$2,127,479
1985						\$7,767,556
1986						\$11,161,387
1987	\$805,723	\$124,935	\$2,841,169	\$9,634,450	\$69,886	\$13,476,163
1988*	\$362,820	\$359,843	\$3,582,173	\$14,983,114	\$100,493	\$19,388,443

* Preliminary data January 1-October 25, 1988.

Table 27. Total number of deliveries and vessels associated with companies operating within Region II in 1987-1988, from state and federal waters.

Port	Deliveries		Vessels	
	1987	1988	1987	1988
Anchorage	6	6	5	3
Cordova	241	173	112	58
Homer	468	266	136	90
Kasilof	0	1	0	1
Kenai	121	39	63	33
Nikiski	1	0	1	0
Seldovia	414	55	92	28
Seward	504	627	185	201
Valdez	60	86	30	30
Whittier	71	124	31	117
Totals	1,886	1,377	655	561

Appendix M. Region II reporting assignment.

REPORT SCHEDULE

<u>Author</u>	<u>Report</u>
Ruesch	1988 Bd. Rept. - done
Ruesch/Browning	1988 Annual Management Report - 1 May
Browning	1988 Catch Report - 15 April
King/Tarbox	1987 Escapement Report - Wilbur
King/Tarbox	1988 Escapement Report - 1 April
King/Davis	UCI Historical Stream Survey - done
King	Kasilof River POP - 1 June
King	Kenai River smolt POP - 15 April
King/Davis	Sockeye Salmon Length/Weight - 1 May
Waltemyer/Tarbox	1986 Stock I.D. - Wilbur
Waltemyer	1987 C & E - 15 Feb to Wilbur
Waltemyer	1988 C & E - 1 May
Waltemyer/Tarbox/Bue	Evaluation of Stock I.D. models- 1 April
Waltemyer/Tarbox	1987 & 1988 Stock I.D. - ?
Tarbox/Kyle	Susitna Euphotic Volume - 7 Feb
Tarbox/Waltemyer	Drift fleet harvest dist. - done
Tarbox/King	Juvenile estimate Skilak/Kenai - 1 May
Tarbox	Offshore Test Fish - 1 May

Number Date Author

2K88-01	03/88	BUE B	Bristol Bay Sockeye Salmon Spawning Escapement Test Fishing in 1985. Brian G. Bue, Stephen M. Fried and Wesley A. Bucher. March, 1988.
2D88-02	05/88	MINARD E	Nushagak River Chinook Salmon Escapement Estimation From Subsistence Catch Monitoring in 1985. Eric R. Minard and Stephen M. Fried. May, 1988.
2K88-03	03/88	CROSS B	1988 Bristol Bay Staff Meeting Notes 2-4 February 1988 Anchorage, Alaska. Beverly A. Cross. March, 1988.
2K88-04	02/88	RUSSELL B	Salmon Spawning Ground Surveys in the Bristol Bay Area, 1986. Richard B. Russell, Donald L. Bill and Wesley A. Bucher. February, 1988.
2D88-05	05/88	BUE B	Sonar Enumeration of Pacific Salmon Escapement to the Nushagak River, 1987. Brian G. Bue. May, 1988.
2K88-06	05/88	BUE B	Port Moller Offshore Test Fishing In 1985. Brian G. Bue, Stephen M. Fried, and Henry J. Yuen. May, 1988.
2K88-07	12/88	RUSSELL B	Salmon Spawning Ground Surveys in the Bristol Bay Area, 1987. Richard B. Russell, Donald L. Bill and Wesley A. Bucher. December, 1988.
2K88-08	04/88	YUEN H	Bristol Bay Sockeye Salmon Spawning Escapement Test Fishing in 1986. Henry J. Yuen, Stephen M. Fried and Wesley A. Bucher. April, 1988.
2K88-09	05/88	FRIED S	Bristol Bay Sockeye Salmon Spawning Escapement Test Fishing in 1987. Stephen M. Fried, and Brian G. Bue. May, 1988.
2D88-10	11/88	BUE G	Sonar Enumeration of Pacific Salmon Escapement to the Nushagak River, 1988. Brian G. Bue. November, 1988.
2K88-11	11/88	FRIED S	Bristol Bay Sockeye Salmon Spawning Escapement Test Fishing in 1988. Stephen M. Fried and Brian G. Bue. November, 1988.
2D88-12	12/88	SANDONE G	Estimated Age-Class Contribution of Pacific Herring to the Commercial Sac-Roe Harvests of Togiak District, 1980-1987. Gene J. Sandone and Linda K. Brannian. December, 1988.
2K88-13	12/88	FRIED S	A Synopsis and Critique of Forecasts of Sockeye Salmon Returning to Bristol Bay, Alaska, In 1989. Stephen M. Fried and Beverly A. Cross. December, 1988.
2K88-14	12/88	RUSSELL B	Salmon Spawning Ground Surveys in the Bristol Bay Area, 1988. Richard B. Russell, Donald L. Bill and Wesley A. Bucher. December, 1988.
2D88-15	12/88	SANDONE G	Age, Sex, and Size Composition of Pacific Herring Sampled from Togiak District, Bristol Bay, 1980-1987. Gene J. Sandone, and Linda K. Brannian. December, 1988.

Number Date Author

2H88-01		In Press.
2H88-02	STAFF	Lower Cook Inlet Area Shellfish Management Report to the Alaska Board of Fisheries 1987-1988. By Staff.
2H88-03	06/88 HAMMARSTROM	Trawl Shrimp Index Fishing in the Southern District of the Cook Inlet Area. Lee F. Hammarstrom. June, 1988.
2H88-04	11/88 SCHROEDER T	Pacific Herring Report to the Alaska Board of Fisheries. Thomas R. Schroeder and Rance Morrison. November, 1988.
2H88-05	11/88 SCHROEDER T	Pacific Herring Report to the Alaska Board of Fisheries. Thomas R. Schroeder and Rance Morrison. November, 1988.
2H88-06	11/88 MORRISON R	Central Region Groundfish Report to the Alaska Board of Fisheries. Rance Morrison Norma Dudiak. November, 1988.
2H88-07	11/88 SCHROEDER T	Historical Overview of Commercial Salmon Fishing Activities in Resurrection Bay. Thomas R. Schroeder. November, 1988.
2H88-08	11/88 HAMMARSTROM	Trawl Shrimp Index Fishing in the Southern District of the Cook Inlet Area. Fall, 1988. Lee F. Hammarstrom. November, 1988.
2H88-09	10/88 YUEN H	Summary of 1989 Kamishak Herring Stock Projection. Henry J. Yuen and Thomas R. Schroeder. October, 1988.
2H88-10	12/88 KIMKER A	Southern District King and Tanner Crab Index of Abundance Survey, July 5 - 15, 1988. Al Kimker. December, 1988.
2H88-11	11/88 BRANNIAN L	Precision of Age Determination and the Effect on Estimates of Abundance and Mortality Among Pacific Herring. Linda K. Brannian. November, 1988.
2H88-12	12/88 KIMKER A	Kamishak District King Crab Index of Abundance Survey, June 14 - 22, 1988. Al Kimker. December, 1988.
2H88-13	12/88 KIMKER A	Kamishak District Tanner Crab Index of Abundance Survey, June 19 - 25, 1988. Al Kimker. December, 1988.

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Number Date Author

- 2S88-01 02/88 WALTEMYER D Summary Agenda and Notes of Upper and Lower Cook Inlet Staff Meeting Held January 25-28, 1988 in Soldotna, Alaska. David Waltemyer. February, 1988.
- 2S88-02 04/88 TARBOX K An Estimate of Juvenile Sockeye Salmon (*Oncorhynchus nerka*) Densities in Skilak and Kenai Lakes, Alaska Through the Use of Dual Beam Hydroacoustic Techniques. Kenneth E. Tarbox and Bruce E. King. April, 1988.
- 2S88-03 05/88 HILSINGER J Run Strength Analysis of the 1987 Sockeye Salmon Return to Upper Cook Inlet, Alaska. John Hilsinger. May, 1988.
- 2S88-04 06/88 TARBOX K An Estimate of Juvenile Fish Densities in Skilak and Kenai Lakes, Alaska Through the Use of Dual Beam Hydroacoustic Techniques in 1987. Kenneth E. Tarbox and Bruce E. King. June, 1988.
- 2S88-05 05/88 TARBOX K Five Year Research Plan for Upper Cook Inlet, Alaska. Kenneth E. Tarbox, Bruce E. King, and David L. Waltemyer. May, 1988.
- 2S88-06 02/88 BROWNING J Commercial Salmon Harvest Statistics for Upper Cook Inlet, 1987. James B. Browning. February, 1988.
- 2S88-07 In Press.
- 2S88-08 10/88 RUESCH P Commercial Salmon Fishing Periods in Upper Cook Inlet, Alaska, 1982-1988. Paul R. Ruesch. October, 1988.
- 2S88-09 12/88 TARBOX K Distribution of the Drift Gill Net Sockeye Salmon Harvest in Upper Cook Inlet 1980-1986. Kenneth E. Tarbox and David Waltemyer. December, 1988.
- 2S88-10 12/88 RUESCH P 1988 Upper Cook Inlet Management Report to the Alaska Board of Fisheries. Paul M. Ruesch and James B. Browning. December, 1988.
- 2S88-11 11/88 HILSINGER J An Overview of Upper Cook Inlet Salmon Fisheries and Allocation Issues, 1977 to 1988. John Hilsinger, Paul Krasnowski and Ken Florey. November, 1988.

1988 Prince William Sound Regional Information Reports

PAGE 1

Number Date Author

2C88-01 03/88 DONALDSON W Trip Report of the Shellfish Meeting Held at Brinnon Washington. Prince William Sound Pot Pot Shrimp Fisheries Management as Compared to Hood Canal, Washington and British Columbia, Canada. Wayne Donaldson. March, 1988.

2C88-02 04/88 DONALDSON W Prince William Sound Management Area Shellfish Report to the Alaska Board of Fisheries. Wayne Donaldson. April, 1988.

2C88-03 03/88 CRAWFORD D 1988 Prince William Sound Annual Staff Meeting Notes February 17-18, 1988 Anchorage Regional Office Anchorage, Alaska. Drew Crawford. March, 1988.

2C88-04 05/88 SANDONE G Estimated Age-Class Contribution of Pacific Herring to the Commercial Sac-Roe Harvests of Prince William Sound, 1973-1987. Gene J. Sandone. May, 1988.

2C88-05 06/88 SANDONE G Prince William Sound 1988 Herring Biomass Projection. Gene J. Sandone. June, 1988.

2C88-06 06/88 SANDONE G Age, Sex, and Size Composition of Pacific Herring Sampled From the Prince William Sound Management Area, 1973-1983. Gene J. Sandone. June 1988.

2C88-07 10/88 BIGGS D Pacific Herring Spawning Ground Surveys for Prince William Sound, 1988, with Historic Overview. Evelyn D. Biggs and Fritz Funk. October, 1988.

2C88-08 10/88 SANDONE G Age, Sex, and Size Composition of Pacific Herring Sampled From the Prince William Sound Management Area, 1984-1987. Gene J. Sandone. October, 1988.

2C88-09 11/88 ROBERSON K Copper River Subsistence and Personal Use Salmon Fishery Management and Research - 1988. Ken Roberson. November, 1988.

2C88-10 11/88 BRADY J Review of the Prince William Sound Area Commercial Herring Fisheries, 1988. James A. Brady and Cordova Commercial Fisheries Staff. November, 1988.

2C88-11 11/88 BRADY J Review of the Prince William Sound Area Commercial Salmon Fisheries, 1988. James A. Brady, Keith C. Schultz and Cordova Commercial Fisheries Staff. November, 1988.

2C88-12 11/88 SCHULTZ K Commercial Salmon Catch Statistics for the Prince William Sound Management Area, 1988. Keith Schultz, Sandra C. Jack and Jeanne M. Merritt. November, 1988.

2C88-13 11/88 DONALDSON W 1988 Orca Inlet Dungeness Crab Survey. Wayne Donaldson and Charles Trowbridge. November, 1988.

2C88-14 11/88 SHARR S 1989 Prince William Sound Salmon Forecast. Sam Sharr. November, 1988.